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American Journal of Digestive Diseases
American Journal of Diseases of Children
American Journal of the Medical Sciences
American Journal of Nursing
American Journal of Physiology
American Journal of Public Health
American Journal of Surgery
American Restaurant Magazine
Analytical Chemistry
Annals of Internal Medicine
Annals of Surgery
Archives of Internal Medicine
Archives of Pediatrics

Baker's Helper
Better Food[2]
Boletin—Instituto Nacional de Alimentación (Uruguay)
British Medical Journal
Buildings and Building Management
Bulletin of the Johns Hopkins Hospital

Canadian Journal of Public Health
Canadian Medical Association Journal
Cereal Chemistry
Clinical Proceedings
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Consumers' Guide

Dental Health

Endocrinology

La Farmacia Chilena
Food Industries
Food Research

Geriatrics

Horwath Hotel Accountant
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Hospital Topics and Buyer
Hospitals
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Hotel Monthly

Ice Cream Trade Journal
Industrial and Engineering Chemistry
Institutions Magazine

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Journal of the American Medical Association
Journal of Biological Chemistry
Journal of the Canadian Dietetic Association
Journal of Clinical Investigation
Journal of Home Economics
Journal of the Indian Medical Association
Journal of Nervous and Mental Diseases
Journal of Nutrition
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Milbank Memorial Fund Quarterly
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Quarterly Bulletin of Northwestern University Medical School

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Revista Brasileira de Medicina
Revista de la Asociación Argentina de Dietologia
Revista do Medicina Do Rio Grande (Brazil)
Revista de Medicina y Alimentación (Chile)
Revista de Nutricion (Peru)

Science
Scientific Monthly
Southern Medical Journal

What's New in Home Economics

[1] Occasionally certain articles are covered elsewhere in the JOURNAL.

[2] Now incorporated with Practical Home Economics.

Journal OF THE AMERICAN DIETETIC ASSOCIATION

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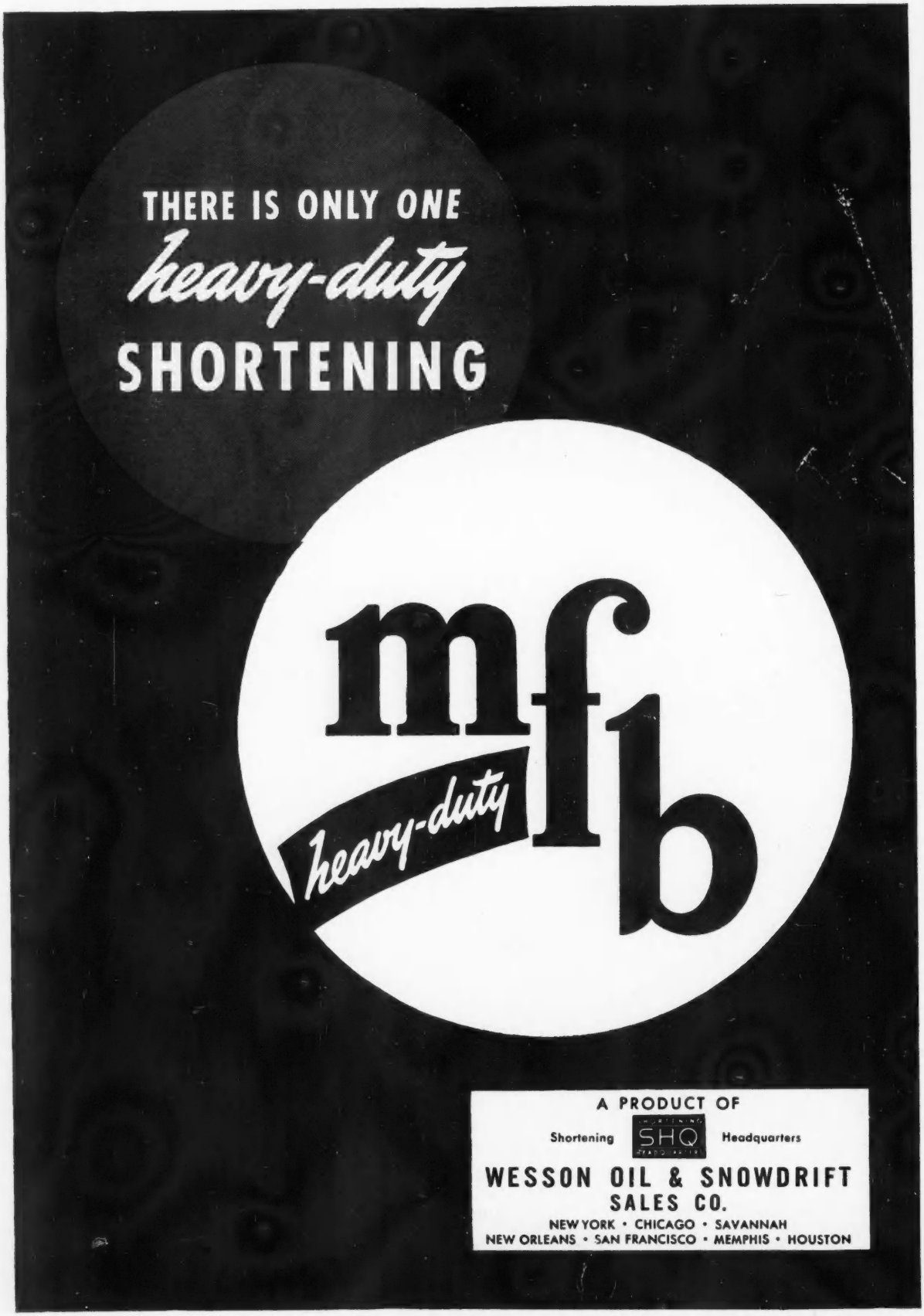
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The Dietitian of the Future[1]

MABLE MACLACHLAN

Director of Dietetics and Housekeeping, University of Michigan Hospital, Ann Arbor

A NEW year, whether it starts in January or October, is a time for re-evaluation of past achievements and the adopting of new goals for future attainment.

I accept the office of President of the American Dietetic Association with a full realization of its many obligations as well as the many privileges. You have had inspiring leadership from your past officers, and as an association we have traveled far in our short lifetime. My hope is that during this coming year our progress will continue and some worthwhile stepping stones will be laid along the pathway to the future.

People are much more important than material things. If we are to plan for a profession which sees its obligations in relation to its service to the *world*—not just to an institution, to a community, or to a nation—we will need to plan for the Dietitian of the Future—her education and her training. Will she be equipped to meet the new world situation? This dietitian will need to have a serious regard for the future of our chaotic world. In our concern for making each dietitian proficient in handling the tools of her profession, have we failed to give thought to the development of her understanding of life as a whole? A report of Harvard University, *General Education in A Free Society*, stated, "The aim of education should be to prepare an individual to become an expert both in some particular vocation or art and in the general art of the free man and the citizen."

Many colleges have reached the point where the vocational and professional programs have usurped most of the students' time, leaving little or no time for the study of the cultural and humanistic subjects. Too many engineers, farmers, business men, teachers, and dietitians have left college with little more than a smattering of a liberal or cultural background. Vocational proficiency is not enough; an understanding mind is also a prerequisite for happiness and for service to the community. Our future dietitians must not only possess cold facts, but warm values. Facts are sometimes confused with knowledge. We do not wish an education which merely teaches man to count. Our future dietitian should have an education which teaches her how to observe and evaluate. Many of our student dietitians are coming to our approved training courses with a background of scarcely a year of English, no association with the great classics of the world, no appreciation of the history of civilization, and no training in logical thinking provided by college mathematics. Has the pendulum of specialization swung too far to one side? Should we not insist that our future dietitians have a central core of subject matter from which they may learn what things in life are worth wanting?

What are the obligations of the training courses—the hospital, industry, clinic, and school lunch room—to the Dietitians of the Future? One of the projects of our Professional Education Section for the past two years has been to study this phase of the education of the Dietitian of the Future, and recommendations have been made regarding the classwork program in our training courses. The purpose of these recommendations is to bring all courses to a more consistent pattern, thus giving surety of a definite amount of preparation and experience.

At one of the first sessions of this convention five people, representing five fields of dietetics, told what they expected of the dietitian. Several characteristics were emphasized by each of the speakers. I think it would be well to repeat these and perhaps check our training programs both for students and for overseers to see whether we meet the challenge.

(a) Dietitians must have more than technical knowledge; they need broad development.

(b) They must have sincere interest, ability, and a sense of responsibility.

(c) They need to have a vision of a problem, the ability to attack it scientifically, and to find a solution.

(d) They should be able to integrate various operations and to see problems as a whole.

(e) They need the ability to direct others.

[1] Address of the President-elect of the American Dietetic Association, given before the House of Delegates, October 18, 1946, in Cincinnati.

The progress of the Association as a whole depends to a large extent on the caliber of the work of the four sections. We have every right to be extremely proud of the achievements as reported by the section chairmen for last year. The Professional Education Section will see the result of several years' work when the *Manual for Teaching Nutrition to Student Nurses* comes off the press. This achievement marks a big step forward in our work in nursing education. In the year ahead it is our job to see that this manual is used as a tool in giving the student nurses sound, applicable, fundamental instruction in nutrition.

The Administrative Section has compiled very useful information relating to equipment requirements, standards for institutional kitchens of varying sizes, and samples of good kitchen layouts. This information is something all administrative dietitians are eagerly seeking, and it will give them a sense of confidence when assisting with the planning of new kitchens or remodeling of old ones.

The Diet Therapy Section has made a survey of food value tables used in hospitals for calculating quantitative diets. They are recommending several as giving reliable and authentic figures. If the same tables were used for diet calculations in different parts of the United States our doctors and dietitians, as they moved about, would not be confused about giving different values to the same food.

The Community Nutrition Section has supplemented the nutrition bibliography compiled last year. This bibliography is of inestimable value to everyone working in the dietetics profession.

I have reviewed just a few of the projects carried out last year. These projects, at present, have been valuable to all who participated in the work. They can be of value to each and every member if the results of these studies are utilized. They should not be stored away in our libraries or desks, but placed in a conspicuous place and put to use. These are a measure by which we can test and compare our own performance.

As our president stated in her address, "The public relations activities of our Association are as yet in the embryonic stage." The awareness of the need for such a program is evident. A very limited public knows of the broad scope of work in the profession of dietetics. A committee is working to set up a program to introduce the Association to the public, stating its program of work and the ideals for which it stands. Several years ago we were reminded that we had "Become of Age" and should not hide our light under a basket. Many dietitians are still shying away from publicity and the public as a whole has no conception of the wide and varied activities and responsibilities of dietitians and of their work. This committee will need the assistance of every member to present to the public the true objectives of our Association.

Every national member is now a member of a state association. This gives the state associations an enlarged responsibility to its membership. The program of work needs to be varied and of interest to all members. The House of Delegates is the legislative body of the Association. Each state selects well qualified members to represent them in presenting the needs and wishes of their states to the national Association. It is hoped that these delegates will assume the serious responsibility of interpreting the policies of the national Association to the members of their states.

With increased membership comes increased responsibilities, and the Executive Board wishes to broaden and expand the services of our Association to its members. In order to allow the Educational Director more time for supervision and consultation with approved course directors, the Finance Committee has advised that an assistant be employed to take part of the responsibility in checking membership applications. The Placement Bureau has been expanded this year with the addition of a new member to the office staff. The Association has a definite responsibility in assisting both the dietitian and the hospital superintendent or other employer in placing the right person in the right job. We are looking forward to a great deal of assistance in our administrative problems from our Administrative Adviser who has recently joined the staff.

Our American Dietetic Association will continue to be active in a legislative capacity. To be considered this year are bills H. R. 7168 and S. 2481 "To Establish the Army Nurse Corps, Dietitian Corps, Physical Therapist Corps, and the Occupational Therapist Corps in the Medical Department of the Regular Army and in the Officers Reserve Corps, and for other purposes." It is the wish of members of the American Dietetic Association that the director of the Dietitian Corps be raised to the rank of colonel. In order to obtain friends for this change, particularly with the Military Affairs Committee, we must put on an educational campaign in order to have sympathetic and well informed members to support our requests.

It is not possible to make specific predictions concerning future events, but certain trends are plainly seen. The acceleration of technical invention, especially in the field of communication, is making the interdependence of all citizens of a state, nation, and the world a very obvious fact. It is no longer possible to view poverty, malnutrition, or industrial strife with complacence. A recognition exists that during the years ahead the important postwar problem will be that of maintaining international cooperation and amity. Our part will be to help create an intelligent understanding of the important role our profession can play in the international scene, and to see that the Dietitians of the Future are trained to meet the challenge of the times.

Dietetics and the Veteran[1]

PAUL R. HAWLEY, M.D.

Chief Medical Director, Veterans Administration

IN SOME cases proper diet is the whole of the treatment of a patient and is, in most cases, of vital importance. Medicine and surgery are not enough. After the doctor has done his part either in the field of surgery or determined the course of treatment, then comes the work of the dietitian. It is she who must know what foods are necessary to restore strength most quickly. It is she who must understand the psychology of a sick patient sufficiently to know how to persuade him to take the proper nourishment. The dietitian is an important part of the medical team, and her importance is being recognized more and more by the medical world.

Aside from our dietetic program I think you would be interested to learn something of the general medical project in the Veterans Administration.

General Bradley faced a serious situation when he took over as Veterans Administrator in August, 1945. Not only was the whole organization shorthanded, but he faced a sudden increase in veteran clients. On V-J day about 2 million veterans of World War II had already been discharged. Added to that were about 4 million from World War I. Even at that time the Veterans Administration was somewhat shorthanded in trying to care for a total of 6 million veterans. But that was just the beginning. Four months later there were 16 million veterans who were potential clients, and the end is not yet in sight. We will eventually have more than 20 million veterans, all of whom will be entitled to some degree of medical care.

When General Bradley and I came to the Veterans Administration, there were 76,843 patients in the 97 VA hospitals. Even then, we did not have enough space for our total patient load, and 4,529 patients were being cared for in Army, Navy, civilian, and state hospitals. At present there are a total of 112 veterans' hospitals with a total patient load of 104,012. We are still caring for 11,733 in hospitals other than VA hospitals.

Our problem, however, has been much more than the lack of space. There was also the lack of all types of personnel, due partially to the fact that hospital salaries could not compete with those paid by war industries.

Those were some of the problems we had to overcome in our new program. Some we have already conquered, but many are still to be solved.

On the matter of hospital space, we hope within the next two years to have our present hospital projects near completion. This will give us a total of 186 hospitals with bed space for 151,500 patients. These new hospitals will, for the most part, be located near the great medical centers of the country, where the grade A medical schools can cooperate with us in establishing residency programs in the hospitals. There have been complaints at times from those who did not understand, that this residency program means that our veterans would be subjected to experimental medicine. We wish to re-emphasize that there is no experimental medicine being practiced upon veterans. This residency program is exactly like that in operation in the most famous hospitals and clinics in the United States. All those major institutions are teaching institutions. They train younger physicians and surgeons.

These training programs were established in the Veterans Administration just as they were in the Mayo Clinic, in Johns Hopkins, in Massachusetts General, and all the other outstanding medical institutions in the country to give the veteran the benefit of the best in medical care—medical care second to none.

We want no veteran to be given medical care of a lower standard than we would accept ourselves and we would want the best. We will not be satisfied until every veterans' hospital is so well run that we would be willing to be patients there ourselves.

We are making progress along that line. Most of the grade A medical schools are already cooperating with us, and others will as new hospitals are built and facilities become available.

We are expanding our outpatient service, and are establishing home town care in many of the states. Under the home town care plan, a veteran who has an emergency illness from a service-connected disability may go to his own or the nearest doctor, if there are no nearby VA medical centers in which to receive treatment, and the VA will pay. Twenty states are already operating under this plan, and

[1] Presented at the 29th Annual Meeting of the American Dietetic Association, October 16, 1946, in Cincinnati.

thirteen more states have signed up for it. We are negotiating with others and hope soon to reach agreements in all forty-eight states.

There are two other important parts of our new medical program. One is our system of mental hygiene clinics, in which we hope to stop the steady rise in mental cases and help veterans set themselves mentally straight before they reach the hospitalization stage. We have fifteen of these mental hygiene clinics in operation, fifteen more authorized, and hope to have a hundred in operation by the end of next year. These clinics are operated by teams of three—a psychiatrist, a clinical psychologist, and a psychiatric social worker. Together they help a veteran solve his problems.

Emotional stress sometimes manifests itself in cardiovascular, gastrointestinal, and other dysfunctions which may later progress into actual organic disorders. We propose in these mental hygiene clinics to help the veteran to release the emotional strain before he develops fixed organic symptoms. Nearly 60 per cent of all hospital beds in civilian hospitals are occupied by mental patients, and the ratio is just about the same in VA hospitals. The mental hygiene clinic system will, we hope, reduce that ratio.

Medical rehabilitation—another essential part of our program—is just getting started. It is designed so that eventually almost every veteran who leaves our hospitals will be equipped to pursue a successful vocation or career. To fit all needs we are devising many systems.

For example, for our paraplegic patients—those who are paralyzed from the waist down—we have special centers for their physical and vocational rehabilitation. Many have already learned new vocations and are able to support themselves outside hospitals. This semblance of normality for a paraplegic means that he must learn to live all over again—from the process of controlling and regulating his normal physical functions to learning a whole new vocation which will require little physical effort. A watchmaking and watch repairing school has already been set up for these and other patients. They can begin to learn while they are still bed patients, and thus prepare themselves for a lucrative and needed occupation as they progress in physical strength.

Among amputee patients this training may mean learning an entirely new vocation, to others relearning old jobs. The program is set up to meet all needs.

In all these phases of our medical set-up, the skill and training of the dietitian plays an important role. Dietetics is an integral part of the medical treatment of the veterans. The entire Veterans Administration program is a challenge to the profession of dietetics. The dietitian's work does not stop with the care and feeding of patients. She is also responsible for maintaining, through proper food, the health and strength of the hospital personnel.

During the war, the dietetic departments suffered the same shortages as the other departments of the VA hospitals. There was a great lack of cooks, bakers and meat cutters, as well as a shortage of dietitians themselves. For example, at V-J day, we had 340 dietitians; today we have 550, and we are gaining more daily.

Patients in VA hospitals complained, and at times with justification, about the meals. They were not always appetizing, and they were often cold. Lack of appropriations made it difficult to serve appetizing foods and stay within the budget allowed. Furthermore, the Veterans Administration had no priorities during the war. Worn-out and antiquated equipment could not be replaced, even if the slim budgets had allowed it.

These are some of the changes we have been able to make now that our new medical program is under way:

(a) Larger appropriations have enabled the dietitian to plan more varied menus and provide more palatable meals.

(b) We have established additional classes and have much greater facilities for training dietitians.

(c) Best of all, dietitians are now consulted by the architects in planning for the new Veterans Administration hospitals. Thus, they can be sure that the new hospitals will have kitchen and pantry facilities which will offer the utmost in efficiency and convenience to the dietitians and the best in service to the patient.

In the old hospitals and those taken over from the services, we have made many improvements. Some of our hospitals now have deep freeze units; many have cold rooms to store frosted foods. As rapidly as we can get new equipment we are improving our diet kitchen facilities, so that food for patients will be not only appetizing and varied, but will arrive at their bedsides piping hot.

Approximately 50 per cent of our patients are ambulatory and can come to the central dining rooms for their meals. We have been able to paint those dining rooms, put in curtains, draperies, and chair back covers. From our greenhouses we have flowers for the tables in many hospitals. In some we even have music while they eat. We have adjusted table heights for wheel-chair patients. We are doing everything possible to make eating a pleasure for the sick.

We have always known the value of "digging in the good earth" as a therapeutic measure, and we have, therefore, had farms connected with our mental hospitals. There the patients work in the gardens and regain mental health and strength. For some years we have had canning facilities to take care of the surplus. Now with the new deep freeze units being installed, the patients may dine on fresh

frozen vegetables throughout all the winter months.

The chief dietitian in each VA hospital has full responsibility for the food service. We look to her to provide patients and hospital personnel with meals that are both satisfactory and in keeping with the highest nutritional standards. Because of this administrative responsibility and our recent improvements, we have become for the first time rivals of the best civilian hospitals for the services of the country's best dietitians.

The VA is also operating courses for student dietitians. Every VA staff dietitian must have had a year of approved hospital training, or three years of previous hospital experience as a dietitian. Those whom we accept as students in our training program must have college degrees. Their school subjects must have included those required for any approved hospital dietitian training course.

The success of on-the-job training in war industries proved the value of intensive training of employees. Realizing that hospitals can also benefit by such training, the Dietetic Service of the VA is establishing training programs for all of its personnel. Some training schools are already in operation. Many of our employees will be training under the GI Bill. We have already in operation a school for chief cooks at Hines General Hospital in Illinois. There, twenty-four expert cooks are taking a six months' course in advanced cookery and supervising. Other courses will include training in new and improved techniques in baking, meat cutting, and all types of kitchen work. There will also be refresher courses for our older employees.

As our residency program gets under way, dietitians are being called on more and more to work in close cooperation with the medical staff. Diet therapy is becoming an increasingly more important part of the medical program. Recent research has established new diet procedures for many types of ailments.

Doctors in VA are emphasizing diet therapy more and more in the treatment of the patient. This offers stimulus to the dietitian to make meals varied and attractive for the patient within the strict limitations of the prescribed diet. Through frequent ward rounds with the doctors she becomes familiar with the patient's dietary needs and observes his progress.

Added to this is our food clinic work with general medical, tuberculosis, and neuropsychiatric patients, where we follow through on the aims of the VA medical program—to get patients well and teach them how to stay well. There the dietitian must gain the patient's confidence and cooperation. She must teach him how to select foods available in his home situation and how to stay on proper diet in order to maintain his health.

The tuberculosis patient presents a definite feeding problem, as does any patient whose illness is of long duration. Keeping the patient well nourished, happy, and interested in his food is necessary as supportive treatment for the disease. To make this possible the food must be of excellent quality, well prepared, and well served.

The paraplegic patient is a general feeding problem, much the same as the tuberculosis patient. During the long period of convalescence, the ingenuity of doctors, nurses, and dietitians is taxed to the utmost in order to maintain the nutritional status of the patient, to promote recovery, and to restore function of weakened and affected muscles.

To be successful the dietitian must have a considerable understanding of the patient himself—that is, his economic situation and his individual characteristics. This also includes problems with veterans of low income, those with particular religious and cultural patterns, and those with emotional problems associated with food. She also needs a thorough knowledge of chemistry, economics, physiology, nutrition, and medical procedures. She should be a natural psychologist and have a combination of common sense and a sense of humor.

Veterans Administration dietitians are good dietitians. Many others like them are needed to meet the challenge of the new VA medical program. They are a vital part in our project of giving the veterans the best medical care possible—medical care second to none.

The Nutritive Value of Various Fats

Conflicting views continue to be expressed about the nutritional merits of various fats. On the one hand, it is suggested that milk fat possesses a specific nutritive quality not present in vegetable fats, while on the other hand some, notably a southern California group, feel that experimental evidence shows that the vegetable oils studied possess all the nutritive qualities of milk fat (butter). Experimental evidence is now presented which seems to show that rats grow equally well irrespective of whether the fat used in the experimental diet is a butter, margarine, corn, cottonseed, peanut, or soybean oil. The evidence appears in a series of observations by Deuel and co-workers, the most recent of which appeared in the June issue of the *Journal of Nutrition*. From the point of view of clinical significance, this recent evidence suggests that nutrition may be well served by both milk fat and vegetable fats. From the point of view of economy and general effectiveness milk fat is best taken in the form of good clean whole milk, for whole milk supplies all the valuable nutrient essentials of milk, including butter fat.—*From Current Comment, J. A. M. A. 131: (August 31) 1502, 1946.*

Food and the Mentally Ill[1]

FRANK F. TALLMAN, M.D.

Commissioner of Mental Hygiene, Ohio Department of Public Welfare, Columbus

FOOD IS the basic requirement for existence. Unrelieved hunger is a security-shaking experience and human beings will go to any length to satisfy this insistent fear-producing need. The story of man and that of his herd behavior is to a considerable degree a story of his quest for a satisfying diet. The severity of struggle necessary to provide food has been a very important cultural determinant. Climates that produce food readily and make possible the easy exchange and transportation of food tend to produce people who are happy, content, and who show little hostile aggression. The opposite tendency is evident in geographical areas where climate and country are rugged and food comes only by sustained, organized, and often hostile aggression. People suffering from a lack of food over a long period of time experience a definite regression in cultural behavior. Food, then, is a basic need and dietitians, as experts in food, are therefore dealing with a force that is incalculable in strength, because it has its roots in hunger.

We shall not review the material concerning the medical value of vitamins and minerals and what happens when they are absent, because this phase of our topic is so well known to dietitians. However, in neuropsychiatry there is particular interest in the use of niacin amide for the treatment of acute psychosis of pellagra and of the characteristic syndrome in niacin deficiency. Also there is the importance of avitaminosis in alcoholic polyneuropathy. Quite apart from the specific use of a specific vitamin is the importance of a combined avitaminosis. Research seems to indicate that a diet deficient in vitamins will produce personality changes and a marked lowering of vitality similar to that observed in a starving population. It has been suggested that patients who have been in institutions for many years may exhibit a syndrome which is frequently confused with so-called mental deterioration. Indeed, it may be found that a prolonged state of avitaminosis may cause brain cell death and, since that pathology is irreversible, apathy and dullness will not be improved by an improved diet. Certainly research needs to be done along these lines and assuredly an institutional diet must be balanced in such a way that avitaminosis will be unlikely.

It would be interesting to learn why individuals tend to prefer certain foods. It is well known that carbohydrate, because it is relatively cheap, forms a considerable part of an institutional diet. Those experienced in feeding patients in institutions insist that patients definitely prefer a diet high in carbohydrates and will, if left alone, live almost wholly on bread and potatoes. Is this occurrence caused by biological factors? Is it because a low-grade avitaminosis has distorted the appetite? Is it because bread and potatoes are likely to be cooked more palatably than almost any other food, or is it because such food can be eaten easily with the limited table service usually available? In any case, this is a subject worthy of consideration and study.

It would seem that food deficiencies, even within the framework of our present insufficient knowledge, lend themselves admirably to a program of prevention. The dietitian then is in a strategic position in the battle of preventive medicine. Assuming that patients in mental hospitals suffer from a low-grade chronic avitaminosis, it is evident that the best treatment of this condition is prevention, particularly if research shows that there are organic changes and irreversible processes at work.

Certainly the dietitian has more in her armamentarium than a pad of reducing diets, a package of gelatin, a can of tomatoes, and a serving of tortured bread crumbs. It is time that she is recognized in the role of a scientist, a part of the medical discipline, and a leader in preventive medicine.

Consider the part diets and the dietitian play in the area of human function described under the general heading "psychology." In dealing with mental patients one must be acutely aware of the total environment and must strive to make this environment as therapeutic as possible. Inasmuch as food satisfies the basic drive, it is obvious that it plays a part in patient care quite beyond the area of biochemistry.

[1] Presented at the 29th Annual Meeting of the American Dietetic Association, October 16, 1946.

From birth, man derives pleasure from the mechanics of eating. Sucking and later chewing are in themselves pleasurable activities which in later life cannot be satisfied by a diet of one consistency. People enjoy chewing things that present some resistance. They like the difference in sensation between chewing a piece of meat or breaking off and crunching a portion of celery. These masticating mechanisms are a very primitive part of the living experience and in babies definite habit disorders arise when the period given to suckling the breast or bottle is too short. It is reasonable to suppose that too short a time for meals interferes with this normal need, causing a reaction which is continued into adult life. There is something definitely anti-cultural operating within a group of individuals who because of routine are forced to gobble their food in a very short space of time. Do not forget, too, that the process of eating is a sensuous one and that we derive considerable satisfaction and security when food has a tempting odor, is pleasant to look at, is comfortable in the mouth, and sets up a sensation of pleasing taste. The satisfaction of all these senses is necessary, not only for good digestion, but for a feeling of well being and security.

The mere fact that food is wholesome and not infected with bacteria or disintegrated by putrefaction does not mean that it is satisfactory for human consumption. It must have all the above attributes to be psychologically satisfying. One does not need to belabor the point that people who do not like their food, whether they be well or ill adjusted, are reduced to a state of insecurity and irritability. If, after a long time, the process of eating is just another drab few minutes in a drab day, it is obvious that cultural levels of behavior are bound to be lowered. Perhaps our necessary preoccupation with calories and vitamins has caused us to forget both the basic psychological importance of food and particularly this factor of emotional satisfaction. Certainly a good restaurant is alive to this area of human need, and assuredly those responsible for feeding the mentally ill have a much greater responsibility since they are a part of the team that is attempting to bring emotional order out of emotional chaos. Dietitians can contribute more than they suspect in this endeavor by paying attention to these factors.

There are certain special problems in dealing with the maladjusted. Many individuals overeat as an expression of insecurity and conflict. This is true in children as well as in adults, and a reducing diet for people of this type will be wholly successful only if the emotional cause of the overeating is eradicated. Frequently the routine and ritual of dieting is an attention-getting and thus security-giving procedure and often, too, provides a ritual which is acceptable to the obsessive-compulsive type of personality. These facts mean that in dealing with the reduction of fat the dietitian should work closely with the psychiatrist, because neither will succeed without the other.

Patients who have delusions of poisoning do not eat because they are afraid that the food will either sicken or destroy them. Many patients have aversions to individual food items. These aversions are tied up with their delusional content and must be taken into consideration in planning meals. Some patients who refuse to eat because of this factor will do so if the offensive food is not included in their diet. The cafeteria offering a choice of foods is very helpful in this situation, but usually this is not sufficient and an individual study is required.

An important problem concerning nearly all of the mentally ill is that their emotional conflicts cause them to have a loss of appetite and poor digestion. This suggests that many patients in mental hospitals have been living on inadequate diets prior to admission and thus have low-grade avitaminosis. It would seem reasonable to suppose that the diet of new patients should contain a high content of essential food factors.

It has been pointed out that the need for food is a basic human drive and that without sufficient calories and essential food factors physical illness inevitably follows. We have seen, too, that food has psychological meaning and that there must be more in the eating program than the satisfaction of biochemical necessities. The eating process is capable of providing much security. Well prepared and properly served food provides the eater with a feeling of security, not only because of the sensory factors referred to but because the patient feels that someone cares sufficiently to make an important effort in his behalf. This feeling is an important factor in providing the type of institutional security that is productive of great good in the ultimate adjustment of the patient. Unfortunately, the psychology of food in institutional living is frequently neglected completely. Assembly line methods are to some extent necessary, but the alert dietitian can do much to utilize the psychological weapons.

Any dietitian must be acutely aware of the physical and psychological importance of eating, but a dietitian working with mental patients must be even more alert to the psychological factors involved if she is to do her part in fulfilling the purposes of the institution. Therefore, at every stage of food preparation and serving the dietitian should ask herself, "Is this meal psychologically satisfying?" "Will it make each patient feel that someone is trying to make him comfortable?" "Is it helping patients maintain their cultural standards—or better still, will the process of eating improve those standards?" "Is the dining room a place where the patients feel more secure because of their experience there, or is going to meals just another drab, apathy-producing few minutes in an almost lifeless life?"

Psychologically Significant Factors in the Nutrition Interview[1]

CHARLOTTE G. BABCOCK, M.D.

THE DIETITIAN is a professional person whose contact with the patient must be designed to facilitate the patient's recovery to a state of health. Although the interview may seem to the patient to be a friendly visit, the nutritionist must know what she is doing and why she feels that such a method is more likely to promote health in her patient than another approach. This paper, then, is concerned with an understanding of the function of the nutrition interview in terms of its psychologically significant factors; only when these are apparent can the interview be a helpful therapeutic experience for the patient, and only then can the clinic nutritionist develop techniques that are flexible and meaningful for her patient and herself. Therefore, let us consider first some general concepts concerning human behavior and later the nutritionist's part in it.

The first concept essential to the understanding of people is that behavior is purposive and has meaning in relation to the needs of the person, although it is at times difficult to see what purpose is being served. Life is made up of a conflict between the pressures of internal needs and those of the environment. The individual who lives most successfully is one who is able to keep these pressures reasonably in balance. Thus he is more continuously comfortable and able to function at a productive and efficient level. However, the patient is under tension when he comes to you from the physician who has just told him that he must modify his whole life in terms of food—food which is one of the most basic of human needs. He may stubbornly resist your instructions, fail to listen, ask you to repeat again and again, or show a casual, flippant manner. If you understand this behavior as a sign of his anxiety, and that it has the purpose of allowing him to reorient his inner tensions to the problem just presented to him, you are more likely to be challenged rather than frustrated by the problem.

That human behavior is purposive does not mean necessarily that the purpose is clear to us on first contact with it. An obese young woman of eighteen was the despair of her over-protective and solicitous mother; since fourteen she had gained weight at an alarming rate. The weight problem had defied many physicians; there had been many theories. Perhaps it was endocrine, and she suffered many injections. Maybe it was congenital, and the family diligently searched its records. Perhaps she was not using the right kind of diet, and many types ot reducing diets, from the famous banana to that of orange juice and water were tried.

An intensive and carefully regulated series of psychotherapeutic interviews in which the therapist listened not only for what the patient said but what she did not say were very revealing. Many factors became apparent: the competition between mother and daughter; the mother's wish to use the first born at times in the role of a son, the father being disabled by illness; the mother's desire to keep her in the little girl role since the mother dreaded the "dating days"; the patient's confusion and feeling that she did not know her course in life; her frustration at being denied opportunity to use her excellent intellectual capacity for other than economic purposes; her tremendously strong feelings of having been cheated because she was a girl and "girls in our family can't go to college"; her need to defy her mother.

Once she felt comfortable with the therapist the story came out: true, she kept to her diet at meal times, and three days before she went to the doctor to be weighed she dieted "like mad"; but between meals and visits to the doctor she ate surreptitiously, always with the secret glee that she was defying the mother. That the mother understood this and out of her own problems played the girl's game was very clear, for the mother spent many hours making fancy pastries and hiding them in the cupboards to "strengthen Jane's ability to resist temptation." Mother and daughter both had strong unconscious motivations which caused them to use food for purposes other than its nutritive value. These motivations were not really known to either, and certainly not to the nutritionist or physician. Definitely, however, the behavior of these two people had purpose and meaning.

[1] Presented at the 29th Annual Meeting of the American Dietetic Association, October 16, 1946, in Cincinnati.

A second concept of human behavior is the awareness that adjustment is the activity of the total person. The human organism is a unit, not an aggregation of organ systems; the gastrointestinal system does not operate without its effect on one's thinking or feeling, nor does the opposite occur. How an individual reacts to a situation depends not only upon the present circumstance but her past experiences with it. A patient consistently refuses to try new foods or any arrangement of food other than that used in her childhood. When this occurs repeatedly, perhaps one can conclude that food means to her the security she felt at an earlier age. Possibly she tenaciously clings to an attitude of being afraid of anything new or different. She may give many rationalizations; she may say that the method of preparation is difficult, or that she is not sufficiently skillful to prepare food the other way, but it is more likely that the individual's life has been such that certain patterns of using food represent for her security and freedom from anxiety. Thus we see that, while the adjustment of the individual may be flexible, it has a continuum—there is a thread of consistency developed out of her earlier experiences with life.

What of early feeding habits in the life of an adult? The development of personality results from the process of integration between the instinctive drives and the demands of the environment. A baby receives many of its first impressions of the world through its feeding. It discovers, for example, that hunger pangs bring an intolerable tension. Crying does not relieve the tension but may cause something to be done about it. The baby learns through hunger that discomfort is a part of the world in which it lives. The baby also discovers much about the world through its first experiences with food. Is feeding associated with tenderness and love, with no effort at all, or does one have to struggle for food? Is the person who feeds it one who cares about the baby and considers its needs, or must the child struggle alone while it eats, constantly anxious because it is not yet strong enough to tip the bottle? The attitudes the child acquires in these early years are often reflected in later behavior.

A patient may become tense and restless when you alter the caloric content even a little, or ask you innumerable questions when you add to her diet. She is concerned about whether or not her diet should be increased; does the doctor really want her to have more food? Are you sure that it will not hurt her? All are questions of whose answers you are certain or you would not have made the recommendation, but they reveal the patient's anxiety and her need to feel that someone is actually concerned with her welfare.

It is apparent, then, that the infant soon learns that food serves as more than physiological nourishment. It provides him also with the pleasure of sucking. It is a device with which to gauge the behavior of people about him. The infant's first satisfaction comes with eating, his first displeasure in being hungry, and his first human relationship is with the person who feeds him. The feelings he experiences in these early months will be associated with food all his life.

Adult behavior patterns often reflect these early attitudes. Some hostesses feel rejected if you do not sample all of their dishes. Many women always make gifts of food to their neighbors. It is common for a woman to measure her skills and, on occasion, her rank in the community in terms of who brings the best cake to the church supper.

Thus it becomes apparent that food expresses many things other than a caloric need. Surely the obese girl ate also to compensate for feelings of social rejection in her family; the mother preferred her twin younger siblings. In her first generation American family, descendants of a line of people long deprived and often without food and prestige, her mother's ability to cook was a sign of the family's well-being. To eat well was a measure of the degree of social acceptance. Satisfaction by eating came more easily than the efforts to obtain satisfaction through boy-girl relationships, of which the mother did not approve anyway, but which would have been healthier for the patient. It is a common experience to "go out for a hamburger" when one has been working very hard and feels the need of a reward, or when one is mildly depressed and feels that he has obtained little from the day. The use of food in racial and religious customs and as an expression of economic status is too well known to need elucidation here.

Having reviewed some basic concepts of human behavior and considered briefly the importance of feeding in the development of the individual's personality, let us turn to some of the problems of the clinic nutritionist.

The nutritionist is faced with the necessity of being flexible and ingenious because of the many types of interviews that she is expected to conduct. Moreover, each patient is an individual with special needs. Many of her problems are brought about by working conditions—the crowded clinic, the many patients who must be seen in the given clinic hours, the inaccessibility of physicians' records, the constant interruptions, the lack of adequate clerical help, and often little privacy in which to interview the patient. To these must be added the reality problems of the patient—her social intelligence, the reduced budget, and the present food shortage. Despite these things, there is much that can be done to make the interview therapeutic. Let us discuss some of these factors.

THE INITIAL INTERVIEW

Whether it be exploratory in nature or of the instruction-giving type, it is of the utmost import-

tance. Here the groundwork is laid for the ensuing contacts with the patient. The patient comes to you in one of many moods: perhaps she is depressed by the news about her physical state; she may be tense and anxious; possibly she is defiant and angry with the physician; she may be curious about your role, or contemptuous of your task, feeling that a person of her caliber needs to be told nothing about food. It is certain that in this interview the patient will "size up" the nutritionist, perhaps less objectively but just as surely as you form an impression of the patient. The nutritionist, therefore, must be unhurried and friendly, and, specifically, she must be prepared to listen.

When illness is present and sufficiently acute to bring one to the doctor, the patient's wish to get well is strong and this wish can be used to gain cooperation. The resistances against the carrying out of diet are less strong, and the concern with the illness often tears away the sophistication with which one normally cloaks oneself. How the patient behaves and what she says at this time are indications of her personality and her future behavior. Perhaps never again will you have as clear a picture of how the patient handles her stresses. The trained nutritionist must be especially alert for clues as to the type of problem this patient will present during the period of diet therapy.

An example will be helpful here. A diabetic patient presented herself for her first instruction in diet. She was an individual who carried herself proudly erect, but with a stiff, formal, and tense manner. She sat down only on invitation and seemed more to touch the chair than to rest her relaxed weight upon it. Although her diabetes was severe and her symptoms distressing, she gave little sign of overt anxiety but listened intently to the nutritionist's comments. She volunteered little about herself, and when invited to talk about her dietary habits said only that they were "normal"; however, she took extensive notes, went over the instructions repeatedly, asked about the smallest details to be sure that she learned the directions so well she would not need to return.

It is certainly true that the nutritionist must not form inflexible opinions of her patients on the first interview. She must be able to reserve judgment and to alter her understanding of the patient as she sees her from time to time. But she must be able to use her trained intuition to foresee some of the problems in each case at its first appearance. In the above case, the nutritionist felt that this woman was a very proud, self-sufficient, and conscientious person who would find it very difficult to ask for help. Her anxiety was expressed only indirectly and through the device of making very sure that she could continue to maintain her independence despite her illness. Here it would have been a serious error for the dietitian to underscore again and again the minute and rigid details of the diet. If anything, such a patient will be too strict and rigid with herself and will need help in learning to derive as much satisfaction from her altered diet as possible.

This woman was quite different from the diabetic patient who in the first interview was so anxious and frightened as to be openly hostile and defiant toward the doctor, proclaiming, "I won't stay on a diet for anyone!" Here the nutritionist must again read the signs, be gentle but firm, and help the individual to submit to discipline, a situation just opposite to that of the first patient.

Anger and hostile behavior often cover up fear. The nutritionist must understand this so that she does not react with anger, but rather tries to get the patient to talk a little about why she is so angry. Often if the patient discovers that the dietitian is not as frightened as she about the meaning of or cause for the diet, her anger will subside and her cooperation will be obtained. Despite the behavior which the patient may show at the initial interview, it constitutes a moment when the patient may be teachable.

A second point about the initial interview is useful. It is desirable on the first occasion to establish your own position on the professional plane. It provides an opportunity to clarify it in the patient's mind and to explain what you can do. Dietitians in hospitals have no doubt experienced situations in which they were confused with the nurse or the maid, or even the clerical personnel. If the patient is anxious and restless, if because of her concern over her illness she cannot give you full attention, the fact that you make your identity clear becomes a useful point around which she can orient herself on her next visit.

Also, it is important to clarify your position at the first interview because the patient may want to use you for purposes other than diet therapy later. The patient who needs help may try to put you into the capacity of a social worker or psychiatrist and want you to assist with problems other than those of the diet. While you may be able to do so, it is unlikely that you will have the time or training; the need to extricate yourself later may cause impatience on your part, not useful to the patient. Definition of one's own position makes it easier to say "no" to the patient when her dependency needs cause her to make demands on you that are greater than your scope.

A third point concerning the initial interview already suggested is that such an interview gains in effectiveness if it can be conducted on the day of referral. While one must be careful not to bombard the patient with many directions and must not expect her to remember all she is told on the first day, the total effect is important. Much of the effectiveness of medical therapy is lost by delays in

consultation, by waiting for reports, and for decision on the part of the medical staff. The patient's discomfort increases and with that comes an increase in resistance which may mount to resentment, a distrust of the staff, and a feeling that her welfare is of little concern. It is more important to spend some time with the staff to produce a smoothly operating clinic and to find devices to expedite the reports of referring physicians, even if this means the educating of staff to the psychological implications of your interview, than it is to have a high statistical average on one's daily record sheets.

THE SUSTAINED RELATIONSHIP WITH THE PATIENT

Although we did not discuss the establishment of rapport in the initial interview, that it must be established was implied. A sincerely friendly attitude toward the patient, without undue solicitousness, is helpful. One needs to be warm and friendly, but unjudging. It is easy for the individual to attribute to you, without awareness that she is doing so, her mother's characteristics, whether she is a patient of ten or fifty, because it was from her mother that she received her first attitudes about food. She may expect you to be punitive, to feel that her illness is her own fault because she has been careless about her diet, or to be rejecting if she finds your directions difficult in any way. Therefore, expect this and show an attitude of willingness to understand her problems, of warmth toward her, and of conscientious attention to details without being critical and condemning. This helps her to express her problems in repeated interviews. It permits you to suggest ways of changing the diet, of substituting a food of equal value for one that does not please her, or of changing her plans in the direction of yours with less difficulty. Remember, the patient is often ashamed of illness, and often the therapist must support the patient's face-saving devices and help her to maintain an honest self-respect.

The nutritionist needs to understand clearly the difference between being firm and being punitive; for many people discipline means punishment, firmness means disapproval. Too often, although we understand this intellectually, our voice of authority betrays our actual feelings. In a position of authority, and one in which the therapist has a supervisor or physician to please as well as the patient, it is hard to maintain the calm, impersonal, but friendly manner; one is tempted to "crack down," especially if there is much pressure from the attending man to "get results." One often needs to be authoritative. Especially with patients whose lives have been without discipline, the relationship with a dietitian who is willing to insist upon standards may provide the individual with a new experience, but one's authority is a tool to be used with great understanding and finesse. To relieve one's own tensions at the expense of the patient means not only that the patient suffers, but that one will have one's own conscience with which to contend at a later hour.

The sustained relationship with the patient may be helped secondly by the manner in which instructions are given. Patients are sometimes so tense and filled with the fear of their fantasies about the illness, that although they respond in the socially correct fashion they do not hear what you have said. Directions should be simple, concise, and repeated. A patient overwhelmed by the news that she can never use salt in her diet again, feels even more hopeless when she is confronted with a complicated diet sheet.

Some months ago a patient returned from a famous eastern clinic where, on his visit to the dietitian, he was given a sheet full of questions about his early feeding history and his personal life. His comments were full of bitterness: "What difference did it make to me whether I had a bottle or was nursed? Why, I couldn't hold a pencil, much less tell anything about my life. All I could see, over and over again on that sheet, was 'life has lost its savor.'" These facts *might* be of some use to the dietitian, but the timing in obtaining them is of much greater import than the information itself.

This brings us to the third point regarding the sustaining of relationships. Often in this paper anxiety and its recognition have been mentioned. Anxiety means simply a feeling of discomfort or tension and should be understood as a normal part of our lives. Anxiety is a characteristic of life; in the lower animals we recognize it as fear. One readily distinguishes between the anxious, frightened howl and the joyfully welcoming bark of one's puppy. A feeling of anxiety often serves usefully, and a feeling of concern for a patient may check one's impulsiveness when tempted to betray something known only to the professional staff.

As mentioned before, the individual must maintain equilibrium between his internal and external pressures; when these are disturbed he experiences anxiety and immediately sets about to return to a more comfortable state. It is difficult to define the limits of "normal" or "average" anxiety, for in the presence of any kind of conflict it occurs and often is greater than can be readily controlled. Since anxiety is uncomfortable and not acceptable to our ideal of ourselves, we try to conceal it. That is why in human beings the possible manifestations of anxiety are legion and are often not easily seen. An awareness that anxiety may be present and an estimation of its degree is of the utmost usefulness in gauging the management of your patient.

Some of the common ways by which it may be manifested in an interview are through physical uneasiness and restlessness, self-conscious laughter, a sudden outpouring of speech which it seems difficult to stop, or by a stony, uncommunicative silence.

Many times there are physical symptoms; no doubt you are familiar with pre-examination anxiety and its symptoms of flushing, sweating, palpitation, dyspnea, urinary urgency and frequency.

In your interviews, observe the patient; if he loses interest, becomes restless, shows physical discomfort, try first to reassure him. The content of the interview may have little to do with the anxiety shown; but if the patient does not respond to reassurance, it is unlikely that the interview can progress. Always, the patient's symptoms have meaning; just as a sore throat may be caused by any one of many bacterial agents, so vomiting on an emotional basis may mean any one of a number of feelings, ranging from disgust or anger to feelings of rejection. It is not the nutritionist's task to discover the meaning of the symptoms nor to treat them, but she should know that there is significance attached to them. A tolerance for the patient's symptoms may reduce his fear and discomfort with you and permit the cooperative sustained therapy relationship over a long period.

THE REACTIONS OF THE PATIENT

First, dependency is a normal reaction to illness. One customarily goes to bed and expects to be waited upon when one has an upper respiratory infection. This kind of dependency is understood and shortly terminated, but often the dependency reactions of a chronically ill person are met with astonishment or contempt. The nutritionist should expect that the patient will manifest dependency needs and should plan for them; if she ignores them she destroys her hard-won rapport. Meeting dependency needs does not necessarily mean fulfilling the patient's wishes, but it often means realizing the presence of the wish. The patient can then be encouraged to assume as much responsibility as is reasonable. Here one must define for oneself what is reasonable for the given patient, a skill that comes with clinical experience. These are patients who will be greatly relieved and who will do much better if they are encouraged to accept help from the nutritionist or the family, since they protest against their dependency needs by independence. Others must be encouraged to more activity. It should be noted here again that the nutritionist is not expected to be the psychiatrist; the question of why the patient expresses his needs as he does, and of how to change his attitude about them hardly belongs to the work of the busy dietitian.

Secondly, one must expect the patient to react with emotion to his illness; he will be upset, anxious, irritable, at times tearful; his total person reacts to the threat of the illness. If the diet therapist has conducted the interview in a reasonable fashion, she should not feel guilty or upset at the appearance of emotion, but should realize that the show of feeling may relieve the patient's tension, and again encourage him and help him to regain his equilibrium.

RELATIONSHIPS WITH THE STAFF

Finally, the attention of the nutritionist should be directed toward a consideration of relationships with her staff. Probably the finest results in medicine are accomplished when the physician and his staff work as a team in which each member has respect for each colleague's field and its limitations. Busy physicians are often demanding of the dietitian, she begins to feel that the doctor expects her to make the patient eat, regardless of the patient's attitudes. She becomes self-depreciatory and feels either that she has failed or experiences defiance when the physician is not pleased. Many physicians have not thought about the psychological aspects of the patient's food problems, but many others have.

In addition, physicians often face difficult situations with a patient who expects more of them than they can possibly give. Often the nutritionist is called upon to be a liaison officer between the physician and patient, to reinterpret what the physician has said in terms of the diet. Patients often try to play off the physician against the nutritionist, and find it easy to blame one of the team, if the results desired by the physician do not occur.

In order that a united front for the patient's welfare may be presented, it is always helpful for the nutritionist to see the patient's medical record before she sees the patient. She should be conscientious about her own records and not make any drastic changes without informing the physician. One should recognize that there is sometimes conflict between the professionally trained career woman and the physician in a medical setting. This problem arises both from our personal feelings and our culture, but an understanding of it leads to freedom from professional jealousy that will broaden the perspective of the nutritionist and assist her in doing more effective work. Nutritionists are quite capable of setting high standards for themselves and their work.

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A New Outlook for Community Nutrition[1]

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FOR YEARS now the people of Europe and America have been reading about diet, studying nutrition, practicing cookery, talking about food, and wondering about the food supply as never before. Is there a bounteous future ahead of us? The food supply is the first necessity of mankind; and a satisfactory food supply is a necessity of advancing civilization." (1)

That paragraph might have been written last week; actually, it was written nearly thirty years ago and published in 1919. Yes, even in 1918, the world knew that food makes a difference to health and work and disease. Furthermore, the food patterns recommended then were not startlingly different from those recommended now, even with all our newer knowledge of minerals and vitamins and many aspects of nutrition.

The United States has been the foremost country in the world in the research showing that food can do more than keep people alive—food can make us healthier, happier, and longer-lived. Canada has also made some small contribution in this direction.

With this knowledge at hand, even though many questions in nutrition remain unanswered, it is natural to find that the last thirty years have seen a great increase in the interest taken in nutrition. All phases of this interest have received great impetus from the war, and it may be profitable to list briefly some of the phases of these nutrition programs.

(a) All aspects of *feeding mothers and babies* for better health have been re-emphasized in recent years, and it is generally agreed that this is most important.

(b) *School lunches* for all school children have again been set as the goal in many countries, although, unfortunately, in Canada, school lunches are not very well organized or supported. No nutrition program can be considered adequate without the benefit of a school lunch program both for the example of good food habits, and for the use that can be made of the school lunch in teaching.

(c) *Factory cafeterias* and the feeding of workers on the job have made a distinct contribution to the health and morale of employees, as well as to production and efficiency.

(d) New interest in the value of adequate feeding in *hospitals* has resulted from the findings that convalescence can be materially hastened and the patient's stay in the hospital lessened by better feeding. In these days of crowded hospitals this may be a highly important factor.

(e) *Classes for housewives*, and indeed all forms of adult education, have been conducted in large numbers for many years. All kinds of educational material have been used to inform the public of both Canada and the United States, as well as other countries.

(f) *International food problems* have been receiving more and more attention. In the midst of the war, the Hot Springs Conference on Food and Agriculture dared to think of a time when all people on earth could be adequately nourished. This was followed by the formation of the Food and Agriculture Organization or FAO, which has recently moved toward the creation of a World Food Board. During the war, food was such a strategic commodity that many other international boards and committees functioned to help its better use as a common resource for the immediate problems. Food has also been an important item in the relief work of UNRRA.

Can we now learn anything about the effectiveness of these efforts? Let us return to my quotation at the beginning: "the people of Europe and America have been reading about diet, studying nutrition, practicing cookery, talking about food, and wondering about the food supply as never before." If that was true thirty years ago and all the more true now, what effect has it produced?

The answer is that, at least in Canada, the results are very disappointing in the face of the enormous time and effort expended.

In Canada we have food supplies enough to export in large quantities, yet our surveys find children too thin to take their true part in life. We have known for at least twenty years how to prevent rickets,

[1] Presented at the 29th Annual Meeting of the American Dietetic Association, October 16, 1946, in Cincinnati.

but rickets is one of the chief deficiency diseases in Canada, killing more children even than infantile paralysis. For some reason pellagra is very rare in Canada, but we do find some scurvy, and yet the world has known for two hundred years how to prevent scurvy. Canada was among the first to show that a few extra foods during pregnancy make a great difference to the health of mother and baby, but we still have far too high an infant mortality rate.

It has been shown in the United States that food makes a difference in mental alertness and the ability to learn in school; yet in many sections, school lunch programs are not making the contribution they could, and we, in Canada, have no school lunch program at all. Although no one factor seems responsible for decay of teeth, we do know the teeth are always better if during the prenatal period and childhood, diets have included the right foods.

NEED FOR RE-EXAMINATION

It seems wise in the face of these facts to re-examine the nutrition activities of these years. We need a new viewpoint for nutrition work, and this new viewpoint centers more and more around the community.

Nutrition work has been too general. It has consisted of a "shotgun" or "blunderbuss" approach. We have tried to tell people all about everything, regardless of what nutritional faults were evident, or what particular food habits or food products were commonly used in the region concerned. We dealt with national averages; thus everyone is told to use more milk because the national average needs to be raised, and this sort of generalization has been told to people in a dairying community where milk consumption is well above the average.

This blunderbuss approach has led us to develop federal and state nutrition agencies which spew forth vast quantities of information of all kinds. It has perhaps given people the idea that these remote agencies take care of everything, when, in fact, the great need is for an evaluation of the problem in each region and local community effort to solve it. This mistaken idea that "George is doing it" seems to be fostered even by the interest in the international food movement as exemplified by the FAO. Some people are more interested in how FAO is going to bring adequate nutrition to the Chinese and Africans than in how the school children in their own town can be adequately nourished.

If these things are possible, why are they not being realized?

The answers to this question are complex and numerous. There is the economic factor—some families and some regions, even now, do not share in the national income sufficiently to be well-nourished. Even more important right now, is the fact that many families do not spend their extra money on food, nor on the right foods. Maybe they don't know any better, maybe they don't care. Yet they have been subjected to a terrific barrage from the blunderbuss of food information even thirty years ago.

COMMUNITY APPROACH

A new viewpoint, a new method of attack is needed. This new method must be a community approach based on a definite survey of conditions and carried into effect on groups in the community, such as adolescent children who are most likely to need it.

There seems to be a necessity to emphasize anew the community approach. State and federal services, Red Cross, and all such agencies should be used as a support for the community approach. This idea is being used more and more in Canada. The Canadian Dietetic Association, for example, is sponsoring practical one-year courses in community nutrition. More and more emphasis is being put on the necessity for local, indigenous, year-round interest in nutrition.

But saying that we must give new vigor to a community outlook is not enough; there must also be a change in *what* is done, since the procedures of the last many years do not seem to have been very effective. It is time to try something new.

Fortunately recent developments suggest what the new approach can be. Methods of nutritional appraisal seem to hold great usefulness for a new community approach—namely, a diagnosis of what is wrong with a region as a base for what to do about it. This will certainly be better than the shotgun approach, even though methods of nutritional appraisal are still far from satisfactory.

In Canada, we have already inaugurated a series of surveys designed to assess the nutritional status of school children throughout the whole of the country on a statistical basis. We began in our far western province of British Columbia last January and hope to be on the Atlantic Coast next March. Of course, there are gaps, but we have already examined nearly four thousand children.

These examinations consist of a record of food habits at different seasons throughout a whole year, plus a physical examination plus blood analyses on every person. Regional differences in the results are given special attention so that practical advice can be given as to what to do in each area. The present indications are that this method will give a real impetus to community enterprise. It is also noteworthy that it seems to be better if the municipal or county organization develops a program as a result of a survey or other interest, as contrasted to our old procedure of developing cumbersome organizations which then seemed to have nothing to do.

A nutritional appraisal will not be immediately possible for many areas, so that other approaches must be found. These also are at hand. The new guiding principle remains the same; namely, try to evaluate the problem or some section of it, decide the facts needed to solve that particular problem, rather than display your knowledge by covering everything possibly called nutrition, and then devote more time to inspiring people to apply these facts.

In practice this means finding one or more groups needing help and seeing that they get it in good practical form. Is it, perhaps, a baby clinic for the many war brides that is needed? Perhaps the school lunch program in the county has broken down from lack of a little help. It may be the adolescents who need special emphasis. Maybe there are factories to which people carry lunches, but the homemakers don't know how to make the lunch "pack a punch." Convalescence can be greatly shortened by hospital dietetics. In addition, there is room for refresher courses to nurses, and for exhibits and other sources of information in hospitals, because patients are greatly interested in the subject. Occasionally there will still be a place for classes. Finally, study groups on phases of nutrition can be developed. This seems to be especially suitable for understanding the international food movement, which promises so much for the peace of the world.

It would appear, then, that we have gone through a blunderbuss, publicity phase of nutrition, which has not been very effective. The remedy would appear to be extension of nutrition surveys, even though on a tentative basis, and in any case, a better evaluation of the problem, with real community effort focused at its solution. Federal and state agencies will be able to help such a local effort, but they cannot replace it.

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The Dietitian Adjusts to Postwar Living

Eileen Wood Middleton, an A. D. A. member, has written an interesting letter describing her life and work as the wife of a veteran attending college under the G.I. Bill of Rights. She says:

"My husband, an ex-captain in the Infantry, is attending the Forest School of Pennsylvania State College, Mont Alto, Pennsylvania. Of the total of 123 students, twenty-seven are married, and the housing situation is as bad, if not worse than in other sections of the country.

"After a thorough, if unproductive, search within a radius of 15 mi. north, east, south, and west of Mont Alto, the resident director of the College, Professor M. K. Goddard, leased Piney Mt. Inn, a summer resort hotel located on Lincoln Highway midway between Gettysburg and Chambersburg. Thirteen of the married couples agreed to move into the hotel and operate it on a cooperative basis, and are now living there with their children. And a truer co-op, I've never seen!

"I, being a true 'A. D. A.-er,' am the general manager of the enterprise. I plan meals, buy the food wholesale and from the local farmers, and am 'personnel manager' as well. My 'help' consists of the wives and husbands, including my own. The wives rotate on the various kitchen and housekeeping jobs, such as cook, salad cook, vegetable cook, and dessert cook. They also take care of the dining room, lobby, and bathrooms. The men rotate on such jobs as dish machine operator, porter, furnace man, and butcher.

"Never in all of my professional experience has there been such a strict budget. Under all conditions, expenses must not exceed $90 a month for complete living. We are forced to really pinch pennies. We put $45 per month per couple into the co-op food 'kitty' and use the remainder for rent money. We buy poultry on the hoof and kill, clean, and freeze it. The men hunt small game, and almost every day we have a fairly good supply of rabbits, squirrels, and small birds in the freezer. The men take a large box of community lunch to school each day, including two 1-gal. thermos jugs of soup, hot chocolate, or milk.

"The owner of the hotel has given us permission to take in a few tourists to help defray our rent expenses, and we have two student families living in trailers parked next door on the shuffleboard court.

"This enterprise is really a gold mine for obtaining experience in all phases of home economics, including hotel administration, institutional management, dietetics, and school lunch. Although several other student co-op and veterans' housing plans have been written up for magazines, we believe that this one is truly unique, and I'm reasonably sure that it is the only one with an A. D. A. dietitian in it."

New Aspects of the Food Poisoning Problem[1]

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THE PROBLEM of illness caused by foods has become of much concern to many who produce, process, and serve foods. The producer and processor have been forced to become interested in this problem because in some cases their products have been incriminated, and it has been necessary for them to test their methods repeatedly to assure themselves of their trustworthiness. Those who serve foods should feel an equal interest in evaluating their procedures since many illnesses have been caused by mishandling foods in the kitchen after the processor had prepared safe, dependable products. Such mishandling has frequently involved the manipulation of food by careless individuals who have low standards of personal hygiene, or who were suffering from obscure infections or from infected lesions on their hands, with subsequent holding of the food at inadequate refrigeration temperatures. All those who share in any way in food production and manipulation up to the point of its final service must, therefore, strive continuously for optimum techniques and to maintain only the highest standards of sanitation and hygiene if food-borne infections and intoxications are to be prevented.

"Food poisoning" is a term with a broad connotation. It is used in the early part of this discussion to indicate those human illnesses caused by bacterial infection or intoxications which are food-borne—a meaning somewhat more extended than the term would strictly indicate.

With such a definition of food poisoning in mind, let us examine the trend of the problem as it is evolving at the present time. Accurate information on incidence is probably not available since many cases and outbreaks are never recorded. Possibly the most satisfactory statistics are the annual reports prepared by the U. S. Public Health Service (1–4). From these reports the authors have prepared a summary to show what is happening in this field. Total annual case incidence of food poisoning, according to the above definition, has been tabulated for a five-year period (1940–1944), and is shown in Figure 1. It should be emphasized that this curve does not include outbreaks caused by chemicals, shellfish, and other agents because they did not seem to be quite so pertinent to this discussion. Certain other limitations were arbitrarily recognized: (a) Only those food poisonings stated to be definitely established were included. (b) Within the latter listings, however, if the cause were given as "probably *Staphylococcus*," for example, the outbreak was accepted as such. (c) When there was a range in case incidence, the lower value was used. (d) When two organisms were described as being causative, the total number of cases was ascribed to the first organism mentioned. (e) When two figures were given, one for estimated case incidence and one for known case incidence, only the latter was included. (f) Outbreaks which were described both as "food poisoning" and as "gastroenteritis" were grouped under the latter terminology. Reports for 1945 have not yet been issued.

Examination of this figure shows that the number of cases of food poisoning caused by bacteria more than doubled during this five-year period. While this may be explained in part by greater vigilance on the part of health officers, it is obvious to students in the field food poisoning is increasing in incidence. It is obvious, also, that many cases and outbreaks never find their way into official reports or the literature.

A further analysis of bacteria-caused food poisoning outbreaks was attempted. The five organisms found to cause the greatest numbers of food poisonings were, in decreasing order respectively, *Staphylococcus*, *Streptococcus* (septic sore throat), *Salmonella*, the *Shigella* (dysenteries), and *Eberthella typhosa* (typhoid fever). Figure 2 shows case incidence for these diseases for the years 1940–1944, as well as those illnesses of unknown origin designated merely as "gastroenteritis."

It is significant that staphylococcal food poisoning heads the list and seems to be the great threat to those who serve food to the masses. Outbreaks caused by *Salmonella* organisms also seem to be

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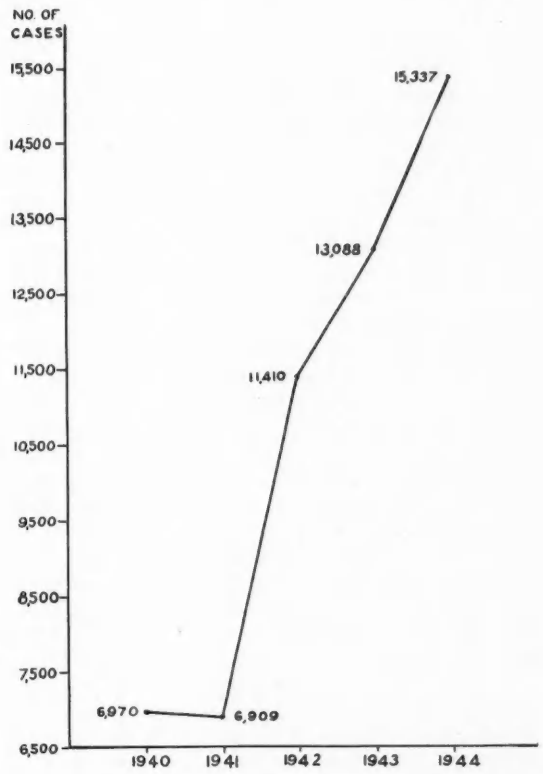

FIG. 1. *Total number of cases of food poisoning caused by bacteria as reported by the U. S. Public Health Service during a five-year period (indicated annually).*

increasing somewhat in number and significance. Except for one year, septic sore throat, typhoid fever, and dysentery tended to remain at a relatively constant level. Apparently by means of a strict enforcement of health regulations it has been possible to strike a base level for typhoid fever and dysentery. Owing to a constantly significant incidence of carriers in the general population, it will probably be difficult to lower this number. The striking rise has been in numbers of cases of staphylococcal food poisoning, the reasons for which are apparent to those trained in preparation of foods under approved conditions and to those who follow the literature closely.

Certainly not to be disregarded are the nine or ten additional types of food poisoning which are listed each year. They encompass not insignificant numbers of cases and cannot be ignored in the general food poisoning problem, but space does not permit their discussion here.

Before turning to a more specific discussion, that large group of human illnesses designated here as "gastroenteritis" should be emphasized. The term is of broad meaning, varying from the explosive outbreaks of diarrhea, caused late in the summer by contaminated water supplies, to the more acute cases which follow ingestion of some peccant food. Without adequate knowledge of cause and effect, control of this situation has been almost impossible. It would be both fitting and proper for scientifically trained individuals interested in better nutrition and safer feeding of people to stimulate further research in this area.

The same benefits are to be gained by lowering the number of food-borne infections and intoxications that accrue when any other disease incidence is reduced. These benefits might be a great saving in manhours lost and in interruption of a routine which is important in most food services. Furthermore, it is definitely known that food poisoning lowers resistance and one may require several days to come back to a normal order of well being. From dietitians with their fine standards for food service could come, most appropriately, stimuli for further conquering these illnesses which plague food processors and those who serve food to large groups.

Having recognized that a broad food infection-intoxication problem exists, we might inquire more deeply into the underlying factors involved in staphylococcal food poisoning. It is important to dietitians because of the increase in food poisoning each year and because much laboratory effort has been directed to in in the last few years. The effort has not always led to the success which was desired because our laboratory methods seem to be inadequate in some cases. Some of these difficulties seem to be almost insurmountable at present. Despite these handicaps, progress has been made and considerable information has been obtained both from the laboratory and from an analysis of the many outbreaks.

First, where do staphylococcal food poisoning outbreaks occur? The answer seems to be: in almost every place where food is served to large groups of people. Several interesting outbreaks

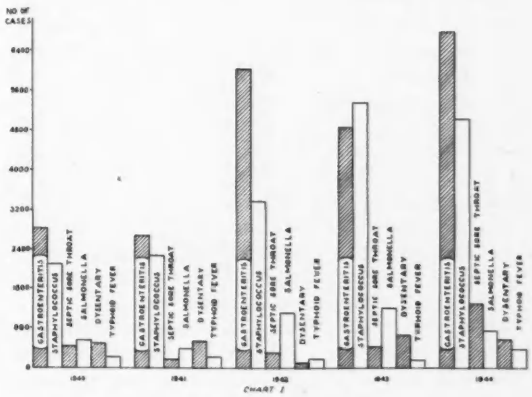

FIG. 2. *Incidence of certain bacterial food poisonings in the U. S. during 1940–1944, according to U. S. Public Health Service reports.*

have even been reported in hospitals. Two such outbreaks may be documented.

(a) In July, 1943, at least 330 patients and personnel connected with a Galveston, Texas, hospital became ill (5). The apparent vehicle was chicken salad. The chickens were purchased on July 1 and held in the refrigerator until July 2, at which time layers of ice were placed between the fowl. On July 3 they were taken out of the refrigerator, drawn, washed, and the heads and feet were removed. Half of the hens were roasted on that afternoon, refrigerated, and served the next day warmed in gravy, with no harmful result. The remaining hens were boiled on July 5, returned to the refrigerator and the next day, boned and the meat thus obtained, used for salad. The preparation of the salad itself took 2 to 3 hr. The cleanliness of the hands and the clothing of the kitchen workers and the sanitary condition of the kitchen were unsatisfactory. The chief cook who did much of the carving of the chicken had been absent from duty through July 3 with severe diarrhea. A very typical food poisoning outbreak resulted.

(b) In October of 1944 at the Shaughnessy hospital in Canada forty persons became ill (6). Nausea, vomiting, cramps, and diarrhea appeared in about 4 hr. after a meal which included salmon was served. The time interval and the symptoms were typical of staphylococcal food poisoning and investigation along these lines was begun. It was revealed that two days before the salmon was served it had been held at room temperature for 5 hr., during which time it had been crumbled by hand. It was then refrigerated until time of further preparation, which was just before the meal.

Such food poisonings also occur in large industrial cafeterias. Again choosing two examples: (a) In July, 1944, in the feeding establishment of one of Georgia's largest industries, a series of two food poisoning outbreaks occurred in rapid succession (7). In these instances, ham was at fault. In the first case, a saw which had not been cleaned since previous usage was employed to slice the ham. Old meat was clinging to the blade, the housing, and the shaft. In the second case, a power driven meat chopper which had not been cleaned was used to grind ham for ham salad. *Staphylococci* were demonstrated in the dried meat clinging to the unwashed pieces of equipment, in both cases. This dried contaminated meat served as an inoculum for the ham under preparation, and thus these carelessnesses led to unnecessary illness.

(b) On August 3, 1943, in an industrial plant at Rochester, New York, eighty-one persons became ill with staphylococcal food poisoning symptoms (8). An investigation of the outbreak showed that after corned beef was served at the noon meal it was held in the cafeteria without adequate refrigeration and again served at the evening meal, at which time it was found to harbor *Staphylococci*. It was further shown that one of the employees who handled the meat had an infected, untreated laceration on one finger, from which *Staphylococci* were recovered.

Space does not permit multiplying further these descriptions of staphylococcal intoxications. The literature, however, records similar incidents which have occurred in an Army mess (9), in a Navy mess (10, 11), in a school residence hall (12), in small lunch rooms and restaurants (13), and in almost every type of food service catering to large groups. The references listed are only suggestive and not exhaustive. The home is by no means excluded as a source of this type of illness, but the problems involved there are probably of less concern to dietitians.

It can be seen, then, that staphylococcal food poisoning is not discriminating in its appearance. This type of intoxication has occurred in large, and what should be, well-organized food services, as well as those which are small and probably have inadequately trained supervising personnel. By this wide distribution the dietitian is warned that she must continuously be on the alert to guard against the occurrence of staphylococcal intoxication.

A more detailed examination of the reports of the staphylococcal food poisoning indicates certain other facts to be apparently true. First, in a very large percentage of these untoward incidents the food has been grossly mishandled. In our laboratory during the past year, we attempted to make a compilation of the staphylococcal food poisoning outbreaks which have occurred since 1940 and which have been reported in some detail in the literature. This is a shorter list than that of the U. S. Public Health Service, but it does include such staphylococcal food intoxications as have been investigated and recorded in scientific journals. In sixty-seven of seventy-seven of these food poisoning outbreaks, a history of mishandled food was indicated. It was not excluded in the remaining ten outbreaks, since no mention was made in the records to either affirm or deny the possibility of poor manipulative procedure.

The following practices, chosen at random, have apparently led to the occurrence of staphylococcal food intoxications subsequent to infection of the food: A bread pudding was stored beneath a steam table for 16 hr. at 75° F. (9). Jellied chicken was held for 24 hr. after preparation at refrigerator temperature and 2 hr. at room temperature (14). Refrigeration and care of raw milk was inadequate (15). Butter was mixed with water, spread on warm buns, and held in a warm kitchen 4–7 hr. (16). Ham was permitted to remain 3½ hr. at room temperature for skinning and boning and additional time for slicing preparatory to serving (11). Cream pies were 18 hr. old when served (17). Lamb stew was

held on the back of the stove for 2–4 hr. (18). Cream-filled cake was held at room temperature for 24 hr. (19). Ice cream mix was held at room temperature overnight (20). A soiled bag was used for inserting cream filling into pastries (21). Beans were baked in deep pans and were known to be warm from 11:45 a.m. to 4:30 p.m. (22). Hollandaise sauce was held warm from 11 a.m. to 8 p.m. (23). Turkeys were stuffed with dressing and held many hours without refrigeration before roasting was begun (24).

This list is suggestive but by no means exhaustive. It does point to the fact that kitchens and equipment used in food preparation must be scrupulously clean if such food intoxications are to be avoided. Constant vigilance must be practiced by the supervising dietitian in order to maintain the highest standards of cleanliness in the food preparation and service area. It is obvious, too, that holding foods at temperatures other than those of the refrigerator is fraught with the greatest danger. There seems to be no recorded outbreak of staphylococcal food poisoning caused by clean, freshly prepared foods.

Only when foods have been held at room temperature or above for a period of time has trouble occurred. For this reason the use of leftovers must be carefully controlled. Likewise, length of holding period and temperature of holding on the steam table must be carefully regulated. If food must be held from one serving period to another, adequate refrigeration must be provided. To avoid hazards from the growth of *Staphylococci*, it is well to recognize the range from 50°–120°F. as their incubation zone, and to avoid it. Adequate refrigeration for foods apparently is 50°F. or below.

Every emphasis must be given to the fact that in case of staphylococcal food poisoning, the danger is not alleviated either by chilling or in some cases by heating the food, once it has been allowed to stand at room temperature. Illness is caused by a toxin produced within the food by certain *Staphylococci*. Neither cold nor, according to some investigators, heating to the boiling point for ½ hr. or more, destroys the toxin once it has been produced. The only possible prophylaxis would appear to be either sterilization of the food of this organism or prevention of the formation of the toxin. Since *Staphylococci* occur very commonly, sterilization is almost an impossibility, and prevention becomes all important. To reiterate, toxin formation is prevented by proper handling and refrigeration. Once the toxin is formed there is apparently no reliable way of freeing the food of it.

The importance of proper handling of food is further underlined by results obtained in our laboratories during the past two years.[3] Three hundred eighty samples of ingredients and prepared foods were examined for the presence of *Staphylococci*. The samples were collected from private homes, two college cafeterias, a private club, small campus restaurants, drug store lunch counters, three commercial bakeries, and the various food service units of an Army Air Field. In no case were these foods known to have produced illness. Of the ingredients (defined here to mean food materials usually incorporated into mixtures before being served) each sample represented a different box or package or other unit of supply, except in the case of the fresh eggs in which each egg did not represent a dozen or other unit. Collected were such items as butter; margarine; milk, fresh and canned; cocoa; eggs, dried, frozen, and fresh; cornstarch and flour; pie mixes; and sugar. Samples of prepared foods were collected from the steam tables of cafeterias, at the end of the serving period insofar as possible. Lunch counter and commercial restaurant samples and baking goods were procured by making a retail purchase in the usual manner. The list of prepared foods which were analyzed for the presence of *Staphylococci* is too long to detail but in general included meat and poultry, cream-filled desserts, sandwich fillings, gravy, salad dressing and sauces. By the methods applied to the 160 samples of ingredients examined for the presence of *Staphylococci*, nineteen or 11.8 per cent were positive. Of the 220 samples of prepared foods, forty-four or 20 per cent yielded one or more strains of *Staphylococci*. The incidence rate as determined here is undoubtedly only minimum. It is not known with certainty whether or not all *Staphylococci* are potential enterotoxin formers, given the proper environment. It is more likely that only certain strains of *Staphylococci* produce enterotoxin, but as yet there is not a way of segregating these strains. With so many important facts unknown, the implication of the knowledge that at least 20 per cent of foods served in public places were infected with *Staphylococci* is obvious. These foods, apparently properly handled, did not so far as was known cause illness. Mishandled, they do form potential foci of intoxication, which could send staphylococcal food poisoning incidence to an even higher level.

In fighting any untoward situation in public health work, such as intoxications or infections caused by a microorganism, one of the first moves is to find out, if possible, the origin of the microorganism and how its entrance into the situation under study may be prevented. It will profit us to exercise such a procedure in this case. The source of *Staphylococci* in foods is somewhat problematical, but some information is available. Tanner has pointed out that temperatures attained in common cookery frequently do not sterilize foods (25). In view of the general characteristics of *Staphylococci*,

[3] These data are taken from a thesis submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, University of Illinois.

one might expect them to be destroyed by good cooking procedures, even though they seem to be more heat resistant than many of the other coccus forms. Certain foods, however, which permit of very slow heat penetration may not be sterilized. Viable *Staphylococci* could conceivably continue to exist and form their enterotoxin after the food had come down to a lower temperature, if the food happened to be mishandled.

More and more evidence accumulates, however, to suggest that the human element, the food handler, may be the real source of enterotoxin-forming *Staphylococci*. Sneezing, coughing, and blowing of the nose distribute many virulent microorganisms, including possibly *Staphylococci*. The hands may be rapidly contaminated when one blows his nose, and it is easy to see how this, in turn, might contaminate foods. Dietitians realize that even the finest sanitary codes for working and courses of training cannot solve the problem. Unless a worker is intelligent and willing to cooperate and maintain a high standard of personal cleanliness and hygiene, the value of any sanitary code may be nil. Infected lesions on the hands are also a source of objectionable microorganisms. These are frequently inflammatory in nature and may be, therefore, infected with *Staphylococci*. It is hardly necessary to re-emphasize the significance of the soiled hand and the necessity of thorough hand washing after leaving the lavatory.

What has just been said may be illustrated by the work of Rutherford (6), who was able to demonstrate that one of seven strains of *Staphylococci* recovered from ham incriminated in a food poisoning outbreak showed the same biochemical reactions as a strain recovered from the nose and throat of one of the food handlers. Slater and Norris (8) obtained organisms of like characteristics from the corned beef and from the finger laceration present on one food handler. Fingerhov (26) in describing a staphylococcal intoxication in Russia pointed out that the strain of organism recovered from the cream tarts which were incriminated and from the pus from the second degree burns on the cook's finger were identical. Davey, Deadman, and Elliott (27) investigating a food poisoning outbreak caused by butterscotch pie were able to obtain what appeared to be identical cultures of *Staphylococci* from the pie, from the pastry bag tip, from the baker's nose, and from the vomitus of one of the patients, thus completing the chain of evidence.

Much more work remains to be done toward the solution of this problem of control of the human element in prevention of staphylococcal food infections. Certainly good habits of personal hygiene must be insisted upon among food handlers. Persons with colds, with suppurating lesions on hands, arms, or face, or with diarrhea should be removed from food preparation and service activities. In many places short courses for food handlers have been used as a means of disseminating sanitation information to employees. These schools have been described by Dodson (28) and by Morgan, Muse, and McKillar (29). In general these brief courses of study seem to include elementary information in such areas as bacteriology, medical zoology, communicable disease, foods, disinfection and sterilization, and personal hygiene and sanitation. In the schools described by Dodson the sponsorship was originally that of the State Department of Health and the State Board of Vocational Education. Later the demand for such courses became so great that full-time instructors were employed. Busy as the dietitian is, it perhaps seems insurmountable to take on added responsibility. However, in reality she cannot afford to do other than insist upon high levels of personal hygiene and sanitation among the employees in her own kitchen. Beyond that, she may wish to give her support to some school or short course in which further instruction concerning food sanitation would be available to all food handlers.

In summary then, it appears that: (a) A food poisoning problem of increasing magnitude exists. (b) Staphylococcal food intoxications seem to have occurred in the past in almost all types of food services. (c) A record of gross mishandling of food has been evidenced in a large percentage of food poisoning outbreaks. (d) Foods not known to have caused illness have been shown to harbor *Staphylococci*. (e) The problem of personnel involved in food preparation seems to be of prime importance in control of staphylococcal food poisonings.

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CONSUMER CAMPAIGN AGAINST FOOD POISONING

For a number of years professional personnel have been aware of the necessity for proper food handling procedures if outbreaks of food poisoning are to be avoided, and not infrequently the literature has carried papers describing research done and surveys made which have pointed knowing fingers at laxness on the part of food handlers. Although the U. S. Public Health Service carries on a continuous campaign against restaurant insanitation, it is largely behind the scenes and the public is unaware of its work.

Now, however, the consumer press has taken up the cudgel and is carrying a campaign, up to now waged almost solely by professional and scientific personnel, to the people who eat in public restaurants and other eating places. In the December issue of the *Woman's Home Companion* was published a telling article titled, "Disease a la Carte," which points out the responsibility of the restaurant eater to demand food which will not produce disease. The article written by Howard Whitman carries an appeal from Thomas Parran, surgeon general, U. S. Public Health Service, in which he urges every American to see that restaurants in his community observe proper sanitary measures.

To back up this virulent attack on food preparation methods of restaurants, full-page advertising space was taken by the *Companion* in daily newspapers all over the country to call the article to readers' attention. The advertisement, which was a condensation of the longer article, pointed out that 25 per cent of all the food produced in this country is eaten in restaurants and that 65 million Americans eat at least one meal a day in public places. It urged the adoption of an adequate restaurant code in every community, training courses for food handlers, a community staff of trained inspectors, and even the publication in daily newspapers of the bacteria counts of restaurants—all to the end that the consumer can feel safe in eating in public places.

This advertisement and article should be welcomed by the professional worker who is responsible for food preparation, employee training, and quality standards of food service, for it will serve to emphasize the important of sanitation in food preparation to her employees. For those interested, reprints of this advertisement are available from the *Woman's Home Companion*.

Epidemiology of the Dining Table[1]

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TOO OFTEN in the past dietetics has concerned itself only with the nutritive qualities of food. But today we insist that food have not only value as nutriment, but also that it not make us ill. The epidemiology of the dining table has come into its own.

What are the infections which may be expected to spread—possibly in epidemic proportions—from the dining table? How can these accidents be prevented?

It has been customary for boards of health to require certificates of health from all food handlers. The layman has hailed this requirement with enthusiasm. In his mind nothing could be more reasonable and practical than the assurance that the waitress is free from *venereal disease*, for example. A blood test seems to give exactly that assurance. Actually, however, such a test is almost worthless as a protection for the consumer. In the first place it is no test at all for gonorrhea, nor is it a test for syphilis acquired since the last examination. Finally, neither of these diseases is likely to be spread by the legitimate ministrations of a waitress, cook, or commercial food handler. The disease can be spread by such means, but the number of cases contracted in such a way is exceedingly small.

Is the score better for the prevention of *tuberculosis?* Possibly, provided the examination is one taking advantage of all of the resources of modern medicine. Is an X-ray of the chest required? If so, how often is it required? If a year has passed since such a film has been made, a certificate may be misleading. Has a sputum examination been made? If the sputum has been collected by the patient, we may well question its value if he has any reason to fear that his sputum might be positive. We must recall, too, that thousands of organisms might be present in each cc. of the sputum and yet the positive diagnosis be missed, for it is not easy to find the *tubercle bacilli* in sputum unless they are present in great numbers. A perfunctory chest examination of the food handler is utterly worthless as a means of detecting tuberculosis, and a careful general physical examination is so expensive as to be almost prohibitive.

Typhoid and other enteric diseases can be, and certainly are spread by food handlers. What can we do about this danger? Again we are disappointed, except as a means of tracing an epidemic which has already occurred. The stool examination for every food handler at frequent intervals would require far larger laboratories than are provided by any state. A stool for such an examination should be collected by an official representative of the health department if we are to place any great confidence in it. Furthermore it is of very little use to examine a *formed* stool. It is only the diarrheal stool—or its functional equivalent, the purged stool—which may be expected to give a positive culture of *typhoid bacilli* since they tend to die off in the lower bowel. Obviously it would be all wrong to permit a convalescent typhoid or dysentery patient to go to work as a waitress without a stool examination. However, we can hardly hope to control enteric infections by laboratory examinations made before issuing a routine health certificate. We know of an instance where 140 blanks, certifying that as many persons (140) were free of all transmissible disease, were signed by an unscrupulous physician in two hours' time. In other instances pads of blanks have been signed and the names filled in later by the restaurant manager as employees began work.

Eczematous hands and open chronic sores on hands or face will usually cause a conscientious examiner to refuse a health certificate, which is to the good. But how can an annual health examination be of any value in protecting the public from acute pyogenic infections spread by infections of the fingers and nails? The contamination of foods with *Staphylococci* may permit the germs to grow in the food and produce dangerous intoxication due to the elaboration of heat-stable enterotoxins. This is a very real danger which can be prevented only by *daily* health examinations. Even then we would expect examination to be only partly suc-

[1] Presented at the 29th Annual Meeting of the American Dietetic Association, October 17, 1946, in Cincinnati.

cessful, if it applies only to the *person* of the food handler. His clothing, his habits, and his contacts are also significant.

Chronic sinusitis is an ailment which may dangerously contaminate food, but which is rarely the basis for refusal of a health certificate. It is rather easy for the food handler to conceal such pathology from a careless examiner. An acute cold in a waitress or dishwasher is far more dangerous to a restaurant patron than are many other diseases which sound very serious. It would be necessary to make *daily* examinations or inspections to keep such ailing persons away from the food counters.

Diphtheria, scarlet fever, streptococcic sore throat, and other similar infections can be spread by the waitress, or the kitchen help who prepare the food and dish it out. They would rarely be detected by the physician issuing the health certificate for the good reason that such persons would be unlikely to apply for a certificate when ill from these diseases.

We are forced then, for the above reasons, to recommend that health certificates for food handlers be relegated to the garret. A quick daily check on hands and noses will be far more effective, though it is by no means a perfect means of prevention. Surely we should eliminate all persons with acute infections of all sorts, and all such persons as are known or suspected as being carriers.

How then shall we go about preventing the spread of disease from the dining table? Can a better way be found? By all means. We shall do far better to put our faith in measures which are real rather than apparent. Barriers far more effective than are commonly observed are in actual existence. We endorse emphatically the following points and principles:

PERTAINING TO EQUIPMENT

(a) *Clean hands.* The hands should be washed thoroughly, frequently, and after each possible contamination—coming from outside, coming from toilet, blowing nose, scratching head, or any other part of the body. Particular attention must be given to the nails. If there are pimples, boils, infected wounds, or hangnails on the hands, the person should not handle foods, or if he does, the lesion should be covered with an impervious bandage. The latter alternative is to be considered only when his aid in the kitchen is indispensable.

(b) *Dishwashing.* Here we are interested in the killing of germs—not merely the removal of particles of food and lipstick. The latter are dangerous only when the germs are not killed. The dishes should be exposed to abundant quantities of clean hot water or chlorinated water long enough for the germs to be killed. The use of some sort of cleansing aid or detergent is obligatory. The dishwashing machine must be manned by an attendant who thoroughly understands it and knows that the valves are working properly. Rinsing must be with clean hot water, with a minimum of handling by clean hands. We must remember that the principle danger is from the *contents* of the dish rather than the dishes themselves, for germs tend to die quickly on dry, hard, clean surfaces.

(c) *Sanitary equipment* must be convenient and arranged so as to make proper use easy. Toilets and wash basins should be easily accessible; screens and anti-vermin devices should be provided to prevent contamination from flies, roaches, rats, or mice; drains and plumbing should be fitted so as to make cross connections, back siphonage, and the like, as nearly impossible as can be arranged. It is well to remember that poor equipment conscientiously and intelligently used is preferable by far to the best equipment carelessly or unintelligently used.

(d) *The refrigerator* must not only be working efficiently but it must be used intelligently. The food should be distributed to permit free circulation of air. The door should be opened rarely, and should never be left standing open.

PERTAINING TO THE FOOD ITSELF

(a) *Milk* may easily be contaminated because of the very nature of its animal origin and place of production. Furthermore, when warm it is a good culture medium for many bacteria. It should be obtained from healthy cows under clean surroundings and must be kept cold before and after being accurately pasteurized. It should be handled carefully after being delivered.

(b) *Water* comes from a hole in the ground and may easily be contaminated. Dirt must be removed and then the water must be chlorinated to kill remaining germs. Private water supplies have often caused infection.

(c) *Salads* require particular care, especially those which are non-acid. They should be well washed, handled with clean hands, and protected from contamination from flies, fingers, and nasal discharges. Salad cooks and waiters need to give special attention to their hands and nasal passages. The person in charge of the kitchen should watch the salads closely.

(d) *Certain foods of a fatty nature* also need special care, such as custards, eclairs, cream puffs, non-acid salad dressings, ham, creamed or stewed chicken, and chicken or ham salad, because they are excellent media for the growth of *Staphylococci.*

(e) *Meats* may transmit various diseases of animal origin or of contamination. They should be thoroughly cooked and then protected from contamination *after* being cooked.

In case an epidemic or episode of food poisoning should occur, it is of the utmost importance that all suspected articles be immediately interned and kept in a condition which will guarantee as little change as possible. This usually means refrigeration at a

low temperature. Packing in dry ice is an excellent plan when it is practical. There will be the natural temptation to throw away suspected food so as to avoid blame or proof that a particular food is at fault, but this is quite wrong and it must be guarded against most emphatically.

There should be no delay in calling the health authorities at once so that experienced persons may possibly trace the cause and thus prevent repetition. The layman's judgment as to the cause of the episode is most fallacious. He is very prone to suspect those articles of food consumed at the last previous meal, while as a matter of fact, the significant article of food may have been eaten a day or more—or in the case of typhoid fever, two weeks—before. The layman is also likely to accuse certain articles which are traditionally suspected, or which may have caused a spectacular episode in his own limited experience.

Many boards of health have epidemic teams organized to function at the earliest possible moment and to make a complete survey of the episode or epidemic as quickly as possible. Very exacting work in bacteriology, epidemiology, and clinical evaluation is required, and sometimes rare detective ability may be needed to interpret all of the clues.

As a means of preventing epidemics from food sources we recommend cleanliness, character, intelligence, and good health in the workers; adequate equipment, alertness, and supervision from the management; and the practice of the principles of the modern science and art of epidemiology in the board of health.

Another important consideration is rarely given the attention it deserves, namely the natural processes which make it difficult for bacteria to get through the normal stomach when it is engaged in the process of digestion. Most bacteria which cause food infection or food intoxication are extremely susceptible to the action of acids. The gastric acidity is quite adequate to kill these organisms if it is of normal strength and has a chance to come into contact with the germs. In fact, one of the most important functions of that fluid is the sterilization of the gastric contents before it passes into the intestine where living conditions for germs are most favorable. How can we utilize this protective factor?

In the first place we must do everything possible to insure the production of copious gastric secretion. Anything that gives pleasure in connection with the food will be of great assistance in this regard. An attractive table and dining room, nice china and silverware, pleasing service, the appearance and odor of the food, the companionship and the surroundings will assist greatly while the opposite condition may well throw the feeble appetite for a "15-yd. loss." We should avoid causes for anger, fear, disgust, or any other unpleasant major emotion. Complaining, nagging, criticism, and sarcastic remarks at the table are most injurious to the flow of the gastric juice. Thus, being inhibited, the gastric juice may fail to kill the bacteria which otherwise would have been destroyed by the acidity of the stomach. We would never wish that food be carelessly handled, of course, but there would be far less danger if everything were gay and pleasant than if there were cause for dissatisfaction.

When there is the least cause to suspect the quality of the food, an acid fruit juice before and during the meal is advisable. Soup is, of course, very stimulating to the appetite and can also serve as another protective measure. The diner will do well to eat slowly, giving himself time to enjoy the food and the anticipation of food. When he can prolong the enjoyment of the meal he will help his stomach in its important task of secreting gastric juice and killing off of any dangerous germs on his plate.

The physiology of the act of swallowing is also of considerable importance. When one eats slowly and chews his food well, he not only enjoys it more and therefore has a better secretion of gastric juice, but he also makes every possible contact of the juices with all parts of the food. A large bolus of food may remain for some time in the warm stomach and the acid cannot penetrate the mass and kill the germs. When water is swallowed it is shunted along the upper curvature of the stomach and hardly mixes with the food at all, but goes almost directly into the intestine. If the water contains germs, they also are carried at once into the intestine and thus escape the action of the gastric juice. When water is used to "wash down the food," as may be the case when one is eating rapidly and gulping his viands, the same result may ensue. When milk is drunk rapidly it may pass the pylorus in much the same manner as water with similar consequences. When milk is drunk slowly or thoroughly mixed with other food, it is stopped in the stomach long enough to be sterilized.

There is much more to the epidemiology of the dining table than may first meet the eye. The food should be clean, of course, likewise the dishes, the silverware, and the service. There is, however, an obligation which all of us have toward our own process of digestion. Give much consideration to the little things about the table and dining room which make for really enjoyable eating. By so doing you will go far to counteract any mistakes which may have been made in the handling of the food itself. One exception to this principle must be mentioned. When the food has been contaminated by the *Staphylococcus* and the germs have grown in the food, producing an enterotoxin, the toxic effects will be felt without regard to these niceties.

Remember that food is a privilege as well as a duty, and that in a very real sense the mood in which we eat is quite as important as the food.

Production Management in Today's Kitchen[1]

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TODAY'S kitchen is the scientific workshop of the modern American home and the progressive American institution.

The home kitchen is a most attractive room, well-planned from a standpoint of physical layout, equipped with the newest kind of equipment and labor-saving devices, well ventilated, well lighted, and decorated in color arrangements which lend a pleasant atmosphere to the room. Improvements in the institutional kitchen must parallel those in the home kitchen, because the food which comes from both units will always be compared. The best competitor any hotel, restaurant, or hospital has is the housewife, and the standards of food in the institutional kitchen must be based on the standards of food established by the American homemaker.

A considerable amount of research on kitchen layouts and equipment has been done in several of our leading universities and colleges, and recently a new department, sponsored by the National Restaurant Association, has been established at the University of Chicago where such research and educational studies are carried on for the restaurant industry. From results of these studies we have today better planned institutional kitchens.

Let us look at today's institutional kitchen and see what improvements have been made in recent years.

EQUIPMENT

New equipment has been designed by industrial engineers who have scientifically studied operations in a kitchen. Ovens have been built with better insulation to conserve heat, with double-deck heating elements, with automatic temperature controls to insure even baking, and many other features that contribute to better performance. Labor-saving automatic controls have been incorporated into electrical equipment. Deep fat fryers are made with automatic and sensitive temperature controls. Steam pressure cookers are made with controlled pressure and the necessary safety features attached. Dough proofing boxes now have humidity and heat controls. Monel metal has been used effectively in work tables and cabinets. Refrigerated boxes maintained at 0° are installed, and refrigerated garbage rooms are added for the sanitary handling of garbage. These, as well as many other new pieces of equipment are considered in today's kitchen layout.

LAYOUTS

It is fine that improved kitchen equipment is available, but the value of such equipment can be lost entirely if the kitchen layout is not planned for maximum efficiency.

A good kitchen layout is one that has its physical floor plan and its equipment arranged for efficient operation and the elimination of all waste motion. Such a layout is the result of a thorough time-and-motion study within the department. Each job must be analyzed for the best methods of operation, the most efficient flow of work, and the steps involved in this work. The distance from work table to oven is checked, from work department to ice box, to sink, or to mixing machines. Every phase of the routine job is considered, and from the results of such a study excellent material can be had to make a good kitchen layout.

We, as home economists and dietitians, should take the lead in the promotion of efficient kitchen layouts. We are the ones responsible for the operations of a kitchen and should, therefore, point out the needs of our own departments. Engineers have done a splendid job in the development of better plans for institutional kitchens, but they need our complete cooperation if we are to continue to have improvements.

VENTILATION

Good ventilation is a big contributing factor to efficient operation, because it means comfortable working conditions, and good working conditions lead to reduced labor turnover and less absenteeism through illness. A higher type employee will stay on the job when working conditions are good, and as a result efficiency is raised to a higher level. A good kitchen ventilation system is a real challenge to

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engineers. Smoke and fumes must be drawn out quickly, the air must be circulated evenly and kept fresh and clean, yet no direct drafts can blow on foods or workers. This is a problem, yet it has been solved, and experience has shown that such a ventilating system is an asset to any kitchen and contributes immeasurably to kitchen efficiency.

THE LIGHTING SYSTEM

A well-lighted kitchen makes a pleasant atmosphere in which to work and contributes to good working conditions for employees. It is important, too, in developing good workmanship, because workers can see what they are doing and so become more accurate. Absenteeism is indirectly affected, because good lighting is a factor in accident prevention.

The development of the new fluorescent lights has been a real innovation. With the right colored bulbs it provides a soft, natural light which is extremely easy on the eyes and gives almost perfect light for workers in all parts of the kitchen.

DECORATION

The institutional kitchen should be given a pleasant atmosphere with the use of soft new color arrangements, blended carefully to make an attractive working unit. Walls might be treated with a combination of glazed tile in soft colors which harmonize with painted walls above the tile. The glazed tile is durable, easily kept clean, requires no upkeep in paint, and is a very attractive wall covering. Glass block windows in today's kitchen, if the layout provides for outside windows, are attractive, easily kept clean, provide ample daylight, and insulate well against outside temperatures. An attractively decorated and well-maintained kitchen assists in keeping workers happy and in developing pride of workmanship, thus contributing to general operating efficiency.

And so we see today's institutional kitchen as an efficient working unit with good equipment, adequate refrigeration, a zero freeze compartment, a well-planned equipment layout, from which food production can be carried on without waste motion, and modern methods of sanitation can be practiced. It is a kitchen well-lighted and well-ventilated to give the best possible working conditions, and it is decorated attractively to make it a pleasant place in which to work.

True, we don't all have such a kitchen, but that should not stop us from studying our present units. We might find that with a few changes, some rearrangement of equipment, a change of light bulbs to give better light, and a fresh coat of paint, our old kitchens might take on a new atmosphere and, with such improvements, efficiency could be raised and cost of operations lowered.

Today's kitchen is a scientifically planned production unit; *but*, this is only one step in the direction of efficient operation. Management of such a kitchen is the second step. The best planned kitchen in the world will not show efficiency unless management makes it so.

What does management of a kitchen entail?

ORGANIZATION

Good management starts with good organization. To organize a kitchen means to distribute systematically all the work involved in production so that an efficient scheme of operation will result.

Certainly we all believe in organization, but do we put our best efforts into it, and do it in a systematic way, or do we carry on some of the old practices of the past when we hired an employee, gave him a little general information about the job, then left him to organize his own work or to depend on fellow associates to assist him?

What system does the production manager use today in organizing her kitchen? First, she considers the production volume required from her kitchen:

How many meals are to be served daily?

What are the menu requirements for these meals?

At what hours are the meals served?

What is the serving period for each meal?

At what time is the heaviest work period in the kitchen?

From the answers to these questions, she determines the number of employees required to produce this volume of food at the right time, and to do the necessary housekeeping job that accompanies this work. Then she begins to make an outlined schedule of employees' work, or let us call it an "Operational Needs Chart." This chart records the planned schedule of employees and their exact working hours. Such a form makes the job of organizing simpler, because the whole work schedule can be studied and planned as one unit Anyone can make such a form for his own kitchen, and those who have used it agree that it provides an efficient system with which to plan work schedules.

The advantages of this type of chart are:

(a) It shows a complete unit schedule on one sheet so that a supervisor can see at a glance whether all the stations are adequately covered at the right time to meet the operational needs of the business.

(b) It gives pertinent information to any relief supervisor required to assume responsibilities in an emergency, thus insuring the flow of continued efficiency.

However, to chart an organization into scheduled hours only is not enough. A Job Analysis should be made to use with this Operational Needs Chart.

The dietitian must make a complete analysis of each scheduled job. The job must be studied for all the responsibilities it involves. Consideration should be given to any physical handicaps of the station, to the proximity of the station to all neces-

sary equipment, to the labor-saving devices, and to every phase of the work that the job entails.

Work requirements of the job are completely analyzed, and the information recorded in concise form on a card, as shown in Figure 1. Such a card would list the working hours, starting and leaving time, meal periods, and the outline of duties and responsibilities of the job. These cards should be made in duplicate—one for the employee, the other kept for the reference file at the dietitian's desk.

The Operational Needs Chart and the Job Analysis file cover the organization for immediate operation, but what of future plans? Good management has not only today's operations carefully planned, but must also look into the future.

Future organizational plans are made by means of Job Evaluation and Job Progression studies.

A good employee thinks not only of the immediate offerings in a job, but also what prospects the future holds; therefore, to attract the higher-type employee into our kitchens, we should have planned progression within the job and within the organization.

Job Evaluation simply means placing a value on a job. How important is this position in your kitchen? What specifications and qualifications are required by the individual to fill it, and what wage range can be fixed upon it?

A minimum and maximum wage rate should be established for each job, so that there is an incentive to progress within the job. A definite time schedule for these wage adjustments should be decided upon and adhered to, so that the individual will move progressively from the minimum to the maximum rate of pay.

In addition to planning progress within the job, a program of progression within the entire kitchen organization should be planned. Progression from one job to another must be planned so the worker can look into the future, and see opportunities ahead if he diligently applies himself.

A Job Evaluation Chart and a Job Progression Program should be developed simultaneously, and such a program is a real asset in recruiting and holding higher-type employees.

Thus today's kitchen is organized systematically with:

(a) An Operational Needs Chart scheduling all jobs;
(b) A Job Analysis File to extend its information;
(c) A Job Evaluation Chart;
(d) A Job Progression Program to attract and hold the good employee.

The simple problem of organizing a kitchen may seem to have been tremendously complicated by a recommended system of this kind, and perhaps you think that records and files on organization are unnecessary. However, if we force ourselves to do a job systematically, and put the results of our work on paper, we do it much more thoroughly than if it had been worked out in our heads only.

No dietitian, no matter how capable she may be, is able to carry all this organizational information in her head and have it at her finger tips when she needs it. Yet no part of this information could be considered unimportant.

A systematic method of organizing accomplishes these purposes:

(a) It forces the dietitian to make a thorough study of her organizational needs for efficient operation.

(b) It provides a system for recording schedules and thus pertinent information for continuous studies.

(c) It contributes materially to good human relations with employees, because well-organized jobs make for contented workers.

(d) It keeps the control of organization with management, because employees are not left to plan their own work schedules.

Good organization, therefore, is the foundation rock upon which can be built efficient operation in quality food production and service. What does management of a kitchen entail?

MINNEAPOLIS—Kitchen 44 Hour Week

#27 Assistant Vegetable Cook—6:20 A.M.–2:30 P.M.
Breakfast Relief: 9:30–10:00
Lunch at 2:30 on own time

6:20– 7:20	Assist vegetable cook in luncheon preparations. Check recipes, menus, key directions and all available leftovers to be used.
7:20– 7:30	Check with food supervisor and vegetable cook on special production instructions for pantry cooking.
7:30– 9:30	Continue preparation and assist with cooking.
9:30–10:00	Breakfast relief.
10:00– 2:30	Set up vegetable and fry stations on main floor pantry. Assemble equipment and supplies for lunch pantry cooking.
10:20–10:30	Check menu and recipes with pantry supervisor.
10:30–11:00	Have set up ready of all vegetables at 10:45. Maintain regular and adequate supply of all vegetables for pantry during lunch period. Keep station clean and well organized. Sinks and tables clean.
2:20– 2:30	Turn station over to #4 fry cook for late afternoon cooking. Check with pantry supervisor on quantities cooked and quantity on hand to be cooked. Leave station clean—all excess utensils washed and put away.
2:30—	

FIG. 1. *Job Analysis Card for assistant vegetable cook.*

QUALITY FOOD PRODUCTION AND SERVICE

We, as dietitians, have a deep responsibility in the service of quality food—food that is nutritious and healthful, carefully prepared, delicately seasoned for flavor, and attractively served. Sound nutrition is all-important, but we must agree that food, however good in health-giving qualities, is of no benefit unless it is eaten. For this reason we must not only consider nutritional value, but we must give serious attention to the details in quality food production and to that "extra appeal" in its taste that results in genuine enjoyment when it is eaten. Yes, "the proof of the pudding is in the eating."

In recent years the American housewife has expanded her knowledge of food and nutrition. She is not only a pretty good cook, but her repertoire of menu items has increased; she has a fairly good understanding of nutrition; she knows about the balance of foods for healthful eating; and she has a keen appreciation of quality food attractively served. In short, she has established new standards of quality food service and we, in institutional foods work, must compete with these standards, and keep on a level with them or above them, if possible.

It was thought at one time that institutional kitchens could not produce food that had a homelike touch because big kitchens had to produce food in large quantities, and it had to be mixed on large machines and prepared hours in advance of service.

This idea, fortunately, has long since been proved a fallacy. Such a negative thought should be dispelled from the mind of every dietitian because it serves only as an excuse for inefficiencies in the management of a kitchen and the production of good quality food. The institutional kitchen today is able to produce good quality food, and food that compares favorably with that served in the home.

Let us delve into this subject of quality food production, and see what factors are important in its practical application.

Standard Purchase Specifications. Top quality food cannot be produced without good quality raw materials. Sample merchandise should be checked and tested in an unbiased way, with a keen eye for high standards in quality. High-grade raw materials generally are the most economical, too, so set strict specifications for the purchase of top grade merchandise from reliable companies, and see that such standards are maintained. On today's market this is difficult, and we realize emergencies must be met, but even in these times don't lose sight of standards for raw materials and buy top grades.

Standard Recipes. This is where quality food standards begin. We have outlived the days when the cook or baker was depended upon to provide recipes. Certainly, there are still many cooks capable of doing this, and like to do it, but all such recipes should be made subject to the approval of the dietitian in charge and should be standardized and recorded by her for continued use in the kitchen. Then, too, a dietitian should not allow herself to be dependent upon cooks for recipes, because control of production is taken out of her hands, and consistently good food does not result from this type of operation.

A standard recipe file should exist in every institutional kitchen; it is here that control of costs, as well as control of quality begins. Such a recipe file reflects the food standards of the dietitian in charge.

It is not difficult to establish a standard recipe file, but it does require work, extra time, and patience. A complete recipe file is not built in a short period of time; such a task requires careful study and is the result of months and sometimes years of work. The dietitian must work with her cooks and actually make the various dishes, check them critically from every angle, and test them for full flavor and attractiveness. She should check the responses in the dining rooms also, to learn the guests' reactions. The dietitian should be her own best critic of the food produced, establish high standards, and put these standards into her recipes.

Even though it is a long project, steady progress can be made daily, and each standard recipe completed is a contribution to quality food service.

Standard Portions. Standard portions are established in conjunction with the standard recipes, and should be checked at the same time the recipe is tested so that complete information can be recorded on the same card. Standard purchase specifications, recipes, and services are important steps towards quality food production, but they must be supported by controlled cooking methods and exacting supervision. The dietitian must be on the alert at all times to check details that lead to top quality food production:

(a) She must plan the ordering of food so that fresh foods will be available for daily use.

(b) She must order foods only in amounts needed for the menu, in preference to buying quantities of food, then attempting to plan menus from the merchandise on hand.

(c) She must arrange production schedules so that food is cooked and baked as close to the serving time as possible.

(d) She must control the quantities of food cooked in advance of service. Perishable foods must be cooked in unit quantities just before service time. Green vegetables, for example, deteriorate in flavor, color, and nutritive value when cooked in advance and held. Controlled cooking of perishable foods and timely schedules for cooking and baking are essential factors in the service of quality food. Freshly cooked vegetables and meats and oven-fresh baked goods lend that homelike touch to the meal and it is well worth the dietitian's time and effort to see that such food is produced. Quality food production is the direct result of good supervision which in this instance means "attention to details."

The work of food production from today's kitchen *is* detailed. It is not a "one-man" job, and success depends to a large extent on how well you, as the dietitian, can work with and direct employees. All the detailed handling of food must be done by the skilled hands of loyal and well-trained cooks who willingly follow your leadership, believe in your standards, and carry out their duties with the interest of their employer at heart. Faithful, hard-working employees are the backbone of any kitchen, and without them no dietitian can be successful, no matter how great her knowledge of food and nutrition may be. Good employees don't just happen, they are made by good management.

EDUCATIONAL PROGRAM

Today's method of developing employees is through an educational program within the kitchen department. Such a program consists of three parts: (a) Induction training; (b) Small-group discussion classes; and (c) On-the-job training.

The whole program is conducted by the dietitian.

Induction training begins with the first interview after the individual is hired. In this interview you make the new person feel relaxed in your presence, so she will be receptive to the information you will give her about the job. Induction training simply means introducing the new worker to her department, to her fellow associates, and to her company. It is the first step in preparing her for the educational work that will follow.

Group classes are started as soon as possible after the new person joins the organization. For the classes the employees are divided into related groups, preferably small groups of not more than six or eight people, so that discussion can be carried on freely. The group classes are designed to cover general subjects, such as the operating policies of the organization in relation to the foods department, the food standards of the organization, and general information pertaining to the responsibilities of the kitchen department. These group classes must be conducted according to regularly outlined lesson plans. They should be planned as a series covering a definite period of time, not more than six weeks and scheduled not more than two lessons a week.

There are some definite points to follow in setting up a program for classes, namely:

(a) Develop well-outlined lesson plans in good continuity which cover all general phases of the work.

(b) Schedule meetings for definite and regular times, and be prompt to begin and end all meetings. Set a real example in promptness.

(c) Keep all classes informal, lively, and interesting. Don't allow yourself to do all the talking. Draw everyone into the discussion, but direct the discussion in the right channels.

(d) Use practical demonstrations, moving pictures, slides, or blackboard demonstrations wherever possible to illustrate your points. Visual education is an asset in all kinds of training.

(e) Pay employees at full rate of pay while they attend classes. Devote the first lesson to the story and history of your company or institution. This is an informal way to start your classes and generally creates a great deal of interest with old and new employees alike.

On-the-job training must be carried on in conjunction with these group classes to complete the program. On-the-job training simply means concentrated training with the individual worker while she goes about her daily routine tasks. This develops self-confidence in the worker more quickly, because you are there to help her understand her job and encourage her at the right time. It also provides an opportunity to follow through with the class instruction and teach the individual how to apply such information in her own work. This is the dietitian's real opportunity to teach efficiency to the employee.

Such an educational program accomplishes these purposes:

(a) It gives the employee an opportunity to know the background and history of the company for which she works, and thus to develop more interest in her company and pride in her job.

(b) It provides an opportunity for development of a close relationship between employees and the dietitian, and so paves the way for exacting supervision.

(c) It provides an opportunity for a close relationship among employees, and thus encourages a friendly cooperative spirit in to the department.

(d) It raises the level of efficiency, because employees are given the necessary information about their jobs in an interesting way.

You may question the feasibility of beginning such an educational program in your kitchen because some of the older employees might scoff at the idea. Experience has shown that this is not likely if your program is properly presented, and the classes are conducted as informal discussion meetings. You, as the leader of this educational program, must handle the situation tactfully and win the support of your older employees. In group meetings you have an excellent opportunity to pay respect to these older employees by drawing them into the discussion diplomatically and paying tribute to their experience. Their response to such recognition is generally good, and in a short time you will find that their leadership qualities have developed, and they help you to make the meetings interesting and educational.

WASTE CONTROL

We cannot discuss operations of a kitchen without some reference to waste control. The kitchen may be well organized, carefully supervised for quality

food production, and offer good working conditions to employees, but unless it has a controlled food cost and its accounts stay in the black, it cannot be considered a successful unit. The dietitian is not expected to set up an elaborate cost accounting system —that requires the service of a trained accountant— she is expected to set up the controls on food within her department that will produce the right results. It is the dietitian's responsibility as department head to buy, produce, and serve food with a minimum amount of waste, and to keep accurate track of all food materials purchased. This can only be done by constant checking and careful supervision.

There are a few simple points which will assist you in controlling costs and waste:

(a) Estimate the meal requirements and plan the purchasing accordingly; don't overbuy.

(b) Prepare food economically with no unnecessary waste in the cleaning of fruits and vegetables, or the trimming of meats or fish.

(c) Produce food economically; have no unnecessary waste through the burning of food, excess shrinkage in meat cookery, failures in baked products, or overproduction.

(d) Use standard recipes and standard portions.

(e) Keep leftover foods to a minimum, but use what you have wisely.

When waste is eliminated your food cost is under control. Waste is not hard to find if you are on the alert for it. The dietitian has the controls in her own hands when she uses standard purchase specifications, recipes, and services. She keeps these controls tightened through her educational program and her constant supervision.

To summarize this discussion on production management in today's kitchen, these methods of management have been recommended:

(a) Good management begins with good organization, and today's method is a thorough one made from the results of careful study. It is recorded on: an Operational Needs Chart, on Job Analysis Cards, in a Job Evaluation, and in a Job Progression Program.

(b) Good management achieves quality food production through the use of: standard purchase specifications, standard recipes and services, and through exacting supervision.

(c) Good management makes use of a three-pronged planned educational program which inducts the new employee into the company, teaches standards and raises efficiency of workers, and builds good human relations.

(d) Good management understands cost controls and knows that such controls begin with the elimination of waste in the handling of food.

The job of food production management is not an easy one, but it will always be a challenge to the home economist and dietitian who enjoys working with quality food, finds satisfaction in developing employees, and is interested in the operation of an efficient kitchen.

RECOMMENDED READING

BECKMN, R. O.: How to Train Supervisors. New York: Harper & Brothers, 1940.

BENGE, E. J., BURK, S. L. H., AND HAY, E. N.: Manual of Job Evaluation. New York: Harper & Brothers, 1941.

BINGHAM, W. N., AND MOORE, B. V.: How to Interview. 3rd ed. New York: Harper & Brothers, 1941.

CANTOR, N.: Employee Counseling. New York: McGraw-Hill Book Company, 1945.

CUSHMAN, F.: Training Procedure. New York: John Wiley & Sons, 1940.

HALSEY, G.: How to Be a Leader. New York: Harper & Brothers, 1938.

HALSEY, G. Supervising People. New York: Harper & Brothers, 1946.

HARWOOD, S.: How to Work with People. Cambridge, Massachusetts: Cambridge Analytical Services, 1940.

LURTON, D. E.: Make the Most of Your Life. New York: McGraw-Hill Book Company, 1945.

McMURRAY, R.: Handling Personality Adjustment in Industry. New York: Harper & Brothers, 1944.

STARCH, D.: How to Develop Your Executive Ability. New York: Harper & Brothers, 1943.

Milk as Possible Cancer Preventive

Dr. Cornelia Hoch-Ligeti of the Royal Cancer Hospital, London, reported to the American Association for Cancer Research that fresh milk may be a preventive of cancer of the liver, at least in rats. Butter-yellow, a dye, invariably produces cancer of the liver in rats when mixed with the diet. However, rats may be protected by daily doses of fresh milk. Dr. Hoch-Ligeti pointed out that the findings need further evaluation, but suggests that possibly cancer of the liver in human beings may be caused by some unknown agent and that the drinking of milk checks the agent, although this is pure speculation. It was also pointed out that casein, when mixed with the diet containing butter-yellow, prevents rats from developing cancer of the liver.—*From New York Times, October 13, 1946.*

Editorial

LOANS FOR GRADUATE STUDY IN NUTRITION AND DIETETICS

More and more, advanced degrees are becoming qualifications for employment in the positions of responsibility in the dietetic field. During the last few years a number of requests have been received by the Placement Bureau of the American Dietetic Association for dietitians to serve as educational directors in administrative and hospital training courses for student dietitians approved by the Association. The position of educational director is a new member of the dietary family circle; nevertheless, there is a growing demand for dietitians qualified to hold such positions, and often the stipulation is made that the candidate hold a master's degree. In any event, some graduate credit is required. In the field of institution management in colleges and universities also, an advanced degree is usually cited as one of the requirements of a candidate to do administrative work or to teach. There is an awakening of interest in graduate study in the field of public health nutrition, too, where an increasing number of workers are coming to feel that advanced study is desirable.

Because such qualifications are becoming more common and because these positions are desirable both from a personal viewpoint and from the standpoint of advancement of the profession, the Executive Board of the American Dietetic Association has established a Loan Fund for Graduate Study to be used by qualified members in pursuit of graduate work. It is hoped that by offering such financial aid, younger members of the Association will be encouraged to do graduate work in the field of nutrition and dietetics.

The money for this fund has been obtained through gifts from members and friends of the Association during the past four years, and additions are currently being made by state, territorial, and local dietetic associations, by memorial gifts, bequests, and interest on special funds held by the Association. Funds will be administered by the Executive Board upon the recommendation of the Finance Committee of the Board, and a Committee on Loan Funds for Graduate Study will review applications and select recipients.

Any active member of the Association of two years' standing may make application for a loan, although no more than three applicants from any one state or territory can be considered at one time. The applicant must be endorsed by a state officer or state delegate of the state association, and by one other member of the Association familiar with the applicant's professional work.

Loans in any amount up to $1000 may be granted. Interest at the rate of 2 per cent annually, beginning one year from the date of the loan will be charged, and repayment of the principle should be made as soon as possible. In any event, it is expected that all loans will be repaid within three years from the date of the loan. Security may be provided by the endorsement of a responsible person or by life insurance carrying a rider providing for payment of the loan to the Association in case of death.

All applications for loans should be received in the A.D.A. office in Chicago not later than February 28, 1947, and notification of loans granted will be made before May 1. Application forms may be obtained from the national office or from the state dietetic association secretary, and should be accompanied by full credentials, including transcript of college credits, endorsements, a photograph, a personal letter stating plans for graduate work, time and place contemplated, degree sought, and future plans.

A more complete discussion of the rules governing these A.D.A. Loans for Graduate Study may be found in the December, 1946, issue of the JOURNAL on page 1089.

RENA S. ECKMAN

With the passing of Rena S. Eckman on November 7, 1946, the American Dietetic Association lost one of its staunchest supporters and earliest members. A graduate of Drexel Institute, Philadelphia, with a degree in normal domestic science, she served for six years as dietitian at Massachusetts General Hospital, Boston. Following this hospital experience, she did graduate work in nutrition and diet therapy at Teachers College, Columbia University, receiving a degree of Master of Science in 1918. In 1919 she was appointed director of house-

keeping and dietetics at the University of Michigan Hospital, Ann Arbor, and later became director of dietetics at Michael Reese Hospital, Chicago. From 1926 until the time of her retirement in 1942, she was director of the Dietary Department of Montefiore Hospital, Pittsburgh.

Miss Eckman has been prominent in the profession of dietetics for many years, having written a paper for the first meeting of the Association held in Cleveland. However, because of the demands of her research work at Teachers College, she was unable to deliver it in person. She was elected second vice-president for 1920–21 and continued as a member of the Executive Board in 1921–22 in the capacity of chairman of the diet therapy section. In 1925 she served as president of the Hospital Dietetic Council, and later led the Pennsylvania Dietetic Association as its sixth president.

Her friend, Irene L. Willson, dietitian at Shadyside Hospital, Pittsburgh, has written a tribute to Miss Eckman, which is quoted in part here:

"Miss Eckman's early realization of the importance of a therapeutic diet made her feel that hospital dietetics was a profession unto itself. The patients were her true concern, and to explain and to make them understand why they should be restricted to certain foods took endless hours of her time. Young doctors, internes, and student dietitians learned many important lessons from her. Her zeal in teaching nutrition to student nurses was an inspiration.

"Her sense of humor, her delightful wit expressed in her little lilting songs, bits of poetry remembered even from childhood, arias of opera she once sang which came bursting from her in intimate moments with friends, endeared her forever in their memories."

New Appointments, Veterans Administration

The following hospital appointments of dietitians (not previously announced) have been made by the Veterans Administration.

NAME	POSITION	LOCATION
	Branch No. 1	
Evelyn Belmont	Staff Dietitian	Framingham, Mass.
Lois Bemis	Head Dietitian	Framingham, Mass.
Julia Kinney	Staff Dietitian	Framingham, Mass.
	Branch No. 2	
Mary Isobel Tupper	Staff Dietitian	Canandaigua, N. Y.
	Branch No. 3	
Mary M. Dingle	Staff Dietitian	Coatesville, Pa.
Elaine P. Ralston	Staff Dietitian	Aspinwall, Pa.
	Branch No. 4	
Clara Gaetjens	Head Dietitian	Oteen, N. C.
Vernelda Jackson	Staff Dietitian	Oteen, N. C.
Pearl Tyner	Asst. Chief Dietitian	Oteen, N. C.
	Branch No. 7	
Elizabeth Birch	Staff Dietitian	Hines, Ill.
Hermia Handt	Staff Dietitian	Hines, Ill.
Margaret Nilson	Staff Dietitian	Danville, Ill.
Grace Scherschel	Staff Dietitian	Ft. Benjamin Harrison, Ind.
	Branch No. 9	
Dorotha Lee Delp	Staff Dietitian	Jefferson Barracks, Mo.
Patricia O'Laughlin	Staff Dietitian	Topeka, Kans.
Mary Alice Streeter	Staff Dietitian	Topeka, Kans.
Lorraine Warford	Staff Dietitian	Jefferson Barracks, Mo.
	Branch No. 10	
Mildred Brame	Staff Dietitian	Jackson, Miss.
Ruby David	Head Dietitian	Temple, Tex.
Aline Grace	Staff Dietitian	Alexandria, La.
Russie M. Pearson	Staff Dietitian	McKinney, Tex.
Lola G. Wilcox	Staff Dietitian	Alexandria, La.
	Branch No. 11	
Janet Billings	Staff Dietitian	Portland, Ore.
Kathryn Wells	Staff Dietitian	Portland, Ore. (Barnes Annex)
	Branch No. 15	
M. Alexine Hardenbrook	Head Dietitian	Sheridan, Wyo.

Promotions, Army Medical Department Dietitians

The following Medical Department Dietitians were promoted during November, 1946. They are on duty in Army hospitals in this country and overseas.

First Lieutenants to Captains

Boyd, Ruth, R-773
George, Ruth L., R-319
Myrbo, Betty J., R-847
Quinn, Helena D., R-593
Sledge, Wilma E., R-757
Toolan, Vivian D., R-749
Wainwright, Alma S., R-21
Waugh, Vera D., R-981

Second Lieutenants to First Lieutenants

Baggan, Mary V., R-2218
Coffey, Ruth E., R-2298
Covalt, Dorothea O., R-1401
DeCock, Leona R., R-2379
Fanning, Mary C., R-2281
Farmer, Melna A., R-2205
Granger, Jean L., R-2289
Holmberg, Rita E., R-2316
Johnson, Anita C., R-2188
Lyng, Anna L., R-2368
Oldland, Marilyn E., R-2277
Reynolds, Barbara K., R-2308

Appointments, Army Medical Department Dietitians

The following Medical Department Dietitians were appointed during the month of November, 1946.

Marian M. Poitrast: Regis College, Mass.; Oliver General Hospital.
Rebecca L. Williams: State Teachers College, Penn.; Lawson General Hospital.

Army Medical Department Dietitians Recalled to Active Duty

The following Medical Department Dietitians, previously reported as separated, have been recalled to active duty.

1st Lt. Norma J. Hotaling, R-1342
1st Lt. Helen L. Kesner, R-560
1st Lt. Ann M. Meggers, R-1358

Army Medical Department Dietitians Separated from the Service

The following dietitians have been separated under the provisions of the Separation Policy established by the Surgeon General for Medical Department Dietitians.

Captains

Girard, Evelyn M., R-370, 1514 South East 2d Court, Ft. Lauderdale, Fla
Ownby, Florence G., R-572, 50 S. Treadwell St., Hamden, Conn.
Richards, Rita R., R-174, 314 N. Country Club Rd., Tucson, Ariz.

First Lieutenants

Anderson, Josephine R., R-222, 1220 Peidmont Ave., N.E., Atlanta, Ga.
Barglof, Dorothy J., R-2002, Route 1, Greenville, Ia.
Bates, Alice J., R-433, 215 Brown St., Iowa City, Ia.
Battle, Maude E., R-2120, Cullowhee, N. C.
Batzis, Katherine, R-2063, 177 Bell St., Manchester, N. H.
Bowman, Mary, R-1259, 1355 Browning Ave., Salt Lake City, Utah
Boyd, Ruth A., R-779, 212 W. Third St., Anaconda, Mont.
Breimyer, Mildred E., R-2058, 727 E. Walnut St., Portland, Ind.
Burke, Mary M., R-2183, 1431 Verega Ave., Bronx, N. Y.
Carr, Helen M., R-1381, 1251 Ceralva, San Antonio, Tex.
Davidson, Mary L., R-2139, St. Cloud, Minn.
Domeszwski, Stella J., R-2099, 148 Hobart Ave., Port Chester, N. Y.
Grainger, Gloria A., R-2130, 2130 Audubon Place, Toledo, Ohio
Harper, Helen L., R-2151, R.F.D. #4, Goshen, Ind.
Henney, Margaret L., R-2116, 632 Sheldon St., Madison 5, Wis.
Hessburg, Helen M., R-872, 6233 Washington Circle, Wauwatosa 13, Wis.
Kozeff, Mary K., R-2143, Route #3, Southbury, Conn.
Lager, V. Joanna, R-2154, 1070 E. Bates Parkway, Englewood, Colo.
Palan, Clara M., R-644, Dundas, Minn.
Park, Mary L., R-2087, Winston Salem, N. C.
Schnitger, Harriet W., R-218, Route 3, Watertown, Wis.
Shriber, Betty L., R-2117, 54 S. Revere Rd., Akron, Ohio
Walker, Florence S., R-2097, 1130 Myrtle Ave., Plainfield, N. J.
Watkins, Annabel, R-1132, 117 Thompson Ave., Donora, Pa.
Wilbert, Amy A., R-425, Beresford, S. Dak.

Second Lieutenants

Anderson, Mary J., R-2276, 934—16th St., Santa Monica, Calif.
Austin, Margaret J , R-2078, 2042—33rd St., S., Seattle, Wash.
Brandner, Grace L., R-2153, R.F.D. #1, Leoti, Kans.
Braun, Lynette A., R-1392, 3320 So. Irving Ave., Minneapolis, Minn.
Baxter, Kathryn J., R-2030, 743 S. Bronxon Ave., Los Angeles, Calif.
Carpenter, Virginia T., R-2303, 24 Front Street, Nashua, N. H.
Faulkner, Ardis J., R-2299, 1236 S. Cedar, Casper, Wyo.
Fuller, Jeanne E., R-2018, 1010 N. Glendale Ave., Peoria 3, Ill.
Helfand, Margery Z., R-2178, 525 W. End Ave., 24, New York, N. Y.
Kennedy, Annie F., R-2306, 3408 N.W. 20th St., Oklahoma City, Okla.
Sanford, Ada W., R-2141, Box 165, Orange, Va.
Starkebaum, Alice M., R-2310, 831 N. Fifth St., Montrose, Colo.
Sticht, Marian A., R-2319, 5423 Brackwood St., Long Beach, 8, Calif.

Current Comment

Planning the Floor Layout for the Food Service Department—Part I

Prepared by a Committee of the Food Administration Section of the American Dietetic Association, Mary W. Northrop, Chairman[1]

The essence of modern architectural planning is simplicity based on function. The modern house is planned from the point of view of saving steps, and production in the modern factory is arranged in straight lines to increase efficiency and to avoid the confusion of cross-traffic. This line of thinking should also carry over to institutional food service departments, where improvement of routing needs to be considered. Size, as well as routing, is an important consideration in the efficiency of working units, for too much space makes extra steps, and too little space results in crowding, which, in turn, causes inconvenience and confusion.

Simplified building must be preceded by simplified thinking, which in turn depends on an understanding of fundamental requirements. The following material has been collected in an attempt to assemble the principles underlying the food service department plan and to present the requirements concisely. The material is admittedly incomplete, but it is hoped that it will be sufficient to serve as a background for the discussions between dietitian and architect which are necessary if these two are to form a successful partnership in any building program. The writing has been done by dietitians for dietitians, and it is to be hoped that architects who already know these things, will not consider it an encroachment on their field.

I. HOW TO START PLANNING

There are two stages in an architect's approach to a design. The first is the preliminary stage in which overall areas should be determined and for which space should be provided. At this stage there is no detailed planning; however, estimates of gross square footage and general location are required. Only at the second stage of design is detailed study needed.

The Flow Chart

The first step in planning is to make a flow chart showing the steps which the work must take, their sequence, and the relations of the various working units to each other. This chart should show how the work should proceed from receiving area to storage, thence to pre-preparation, preparation, service, consumption, and disposal of waste. It should also show which units of the department need contact with each other, which with the rest of the institution, and which with out-of-doors.

There is little difference in basic flow charts, for food takes the same route in all food service departments. Differences in the application of the plan usually depend on three factors: First, the

[1]The American Dietetic Association wishes to express its grateful appreciation for the assistance of the following persons in the preparation of this material:

Collecting the material: Mary de Garmo Bryan, Elizabeth Cole, Eunice Cox, Charlotte L. Donaldson, Helen Goodenow, Ruth Gordon, Wintress Dalbey Murray, M. Ethel Ollis, Adeline V. Paulson, Elizabeth P. Sears, Marjory E. Stevenson, Helen L. Tweedale, Jean Hughes Voorhies, Lucy W. Woodson.

Preparing the manuscript: Janet Christensen, Nancy D. Dudley, Margaret Gunderson, Virginia Mackey, Annette Olin, Charlotte Sayles, Carol Shogren, Theresa Yutrzenka.

Checking the manuscript: Bertha Biltz, Elizabeth Cole, Mary J. Davidson, Quindara O. Dodge, Alice M. Fenno, Marion V. Floyd, Beulah Hunzicker, Millie E. Kalsem, Sophia L. Morris, Nelda Ross, Elizabeth P. Sears, Ruth W. Spencer, Bessie Brooks West, Adeline Wood.

Checking of architectural aspects: Perry B. Johanson of Naramore, Bain, Brady, and Johanson, Seattle.

nature and complexity of the menu determines the amount and kinds of equipment required. Second, the number of meals to be served determines the size of that equipment. Third, and, surprisingly, the least fundamental, is the type of institution in which the department is found. Hospitals, to be sure, need a tray service unit in the kitchen, or else an area for assembling the food before sending it to decentralized serving pantries, which must also be planned as part of the department even though they are remote from it. Some hospitals may also want a special diet kitchen. College feeding units, industrial cafeterias, and certain other types of institutions may need provision for banquet service. Any type of institution may need a snack bar or coffee shop. These are all additions to the basic plan, not deviations from it. The plan itself is the same, whether it pertains to the well-routed home kitchen or to the institution feeding thousands. Flow Chart 1 illustrates such an overall plan.

Fitting the Department into the Building

When the flow chart has been made, it is time for the second step, that of orienting the general plan to the building. With modern artificial lighting, ventilation, and sound conditioning, outside windows have become a matter of taste rather than one of necessity. Many of the problems of location have been solved. Most people, however, still like daylight and an outside view and think food service departments are more pleasant if there are plenty of windows. Then, too, certain units inevitably must be accessible to other units. These proximity requirements are:

(a) Accessibility of main corridors, stairways, and elevators to dining rooms, offices, and locker rooms;

(b) Accessibility of service elevators to decentralized tray service, garbage and trash storage, and storerooms;

(c) Accessibility of dumbwaiters to main kitchen, centralized tray service, diet kitchen, centralized dishwashing, and banquet or dining room service, if on a different level;

(d) Outside windows desirable in preparation and production areas, dining rooms, dishwashing units, and offices;

(e) Outside exits needed for receiving area and garbage and trash storage.

Divisions and Partitions

On the flow chart can also be shown what partitions are necessary within the food service department; or a separate chart can be drawn to divide the department into areas. If the number of partitions is kept at a minimum, problems of light and ventilation will be less, supervision will be easier, space will be saved, and there will be fewer walls to wash and corners to clean. In general, the following areas must be enclosed:

(a) Receiving. This area must be cut off to avoid drafts in cold weather and to facilitate air conditioning in hot weather.

(b) Storage. This will include refrigerators and dry stores.

(c) Preparation. This includes meat and vegetable preparation, baking, cooking, salad and sandwich making, and the clean-up areas related to these processes. In hospitals, the tray service unit or a space for food trucks will be a part of this area.

(d) Cafeterias and dining rooms. The number of separate dining rooms should be kept at a minimum, but one or two small rooms will be needed in most institutions for committee meetings and other special service.

(e) Dishwashing.

(f) Offices.

(g) Locker rooms and/or lavatories.

(h) Garbage and trash storage. This room should be refrigerated, or cross-ventilated and screened, and should be accessible not only from all parts of the food service department, but also from other departments of the institution. It should also be close to the exit from which garbage is to be removed.

Beyond these fundamental divisions, every partition and wall should be suspiciously scrutinized before it is built. There would seem to be little justification for compartmentalizing the various working units within the preparation area.

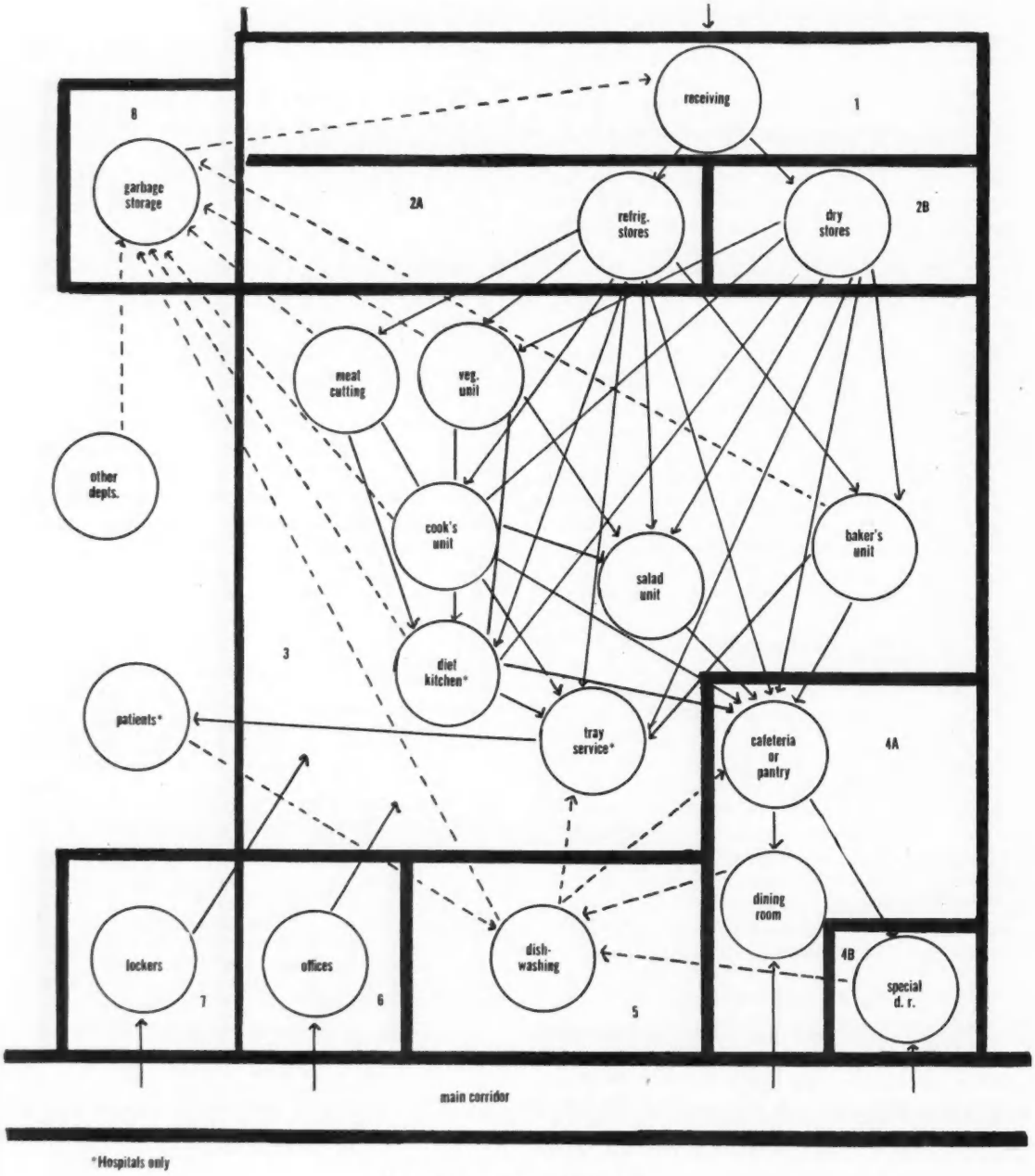
Project Number 4, prepared by a committee of the Food Administration Section of the American Dietetic Association during 1945–46, deals with the general planning of a food service department—the layout, flow charts, and floor plans. With so much hospital, institutional, and industrial building now either under way or in the planning stage, the need for this type of information today is urgent. In order to make it available for use as soon as possible, the Executive Board decided that this project might be published in sections in the JOURNAL. In the January, February, and March issues, therefore, the Current Comment Section will be devoted to planning of the food service department. Reprints of each part will be available soon after publication. The first part covers the following topics:

I. How to Start Planning
II. Receiving and Storage
III. The Meat and Fish Unit
IV. The Vegetable Unit
V. The Cook's Unit
VI. The Baker's Unit
VII. The Salad Unit

Planning Within the Department

The third step is to plan the relationship of the units within the department in such a way that the work may proceed without back-tracking and with a minimum of cross-traffic and effort. The fourth step is to allot space so that working units will be separated to avoid confusion, and so that each will have the space it requires. To do this, it is necessary, first, to study the requirements of the individual working units and specialized areas in the food service department, some of which are suggested in the following sections of this material.

When the general floor plan has been agreed upon, the necessity for support columns may influence



FLOW CHART 1. *Basic flow chart.*

some of the space relationships; this factor should be carefully considered. Columns should be included in partitions or located adjacent to fixed equipment wherever possible, rather than standing as obstructions in otherwise clear floor areas. It will usually be the dietitian who must yield, for columns are uncompromising.

Then will come lighting, ventilation, acoustics, floor drains, doorways, hand sinks, intra-departmental communicating system, and many other important details.

Lighting. The equivalent of daylight should be provided for *all* working surfaces, and both the lights themselves and the kitchen ceiling and wall surfaces should give light of the proper intensity without glare.

Ventilation. Fresh air, temperature control, and control of odors are all essential in a food department. In a department with adequate outside windows in all areas, and in a mild climate, a hood and a pull-out fan over the heated equipment may suffice. In most places, however, partial or complete air conditioning is advisable.

Acoustic treatment. Food service equipment is noisy. Floors and working surfaces are of necessity hard-surfaced. The ceiling, and, if necessary, parts of the walls, should be equipped to absorb the noise unavoidably generated when hard-surfaced pots and dishes come in contact with each other or with equally hard-surfaced tables. Such acoustic treatment is an important factor in achieving customer comfort and employee efficiency.

Floor drains. Adequate plumbing to allow for hosing the floors of preparation and clean-up areas should be planned, and floors must be waterproof. The floor drains should be located so that all areas slope toward them, but they should never be so located in relation to a working unit that any worker will be forced to stand on uneven surfaces. Floor drains should be provided with flush-out valves. Hand sinks should be conveniently available to all food service employees. They should have knee action or foot pedal control.

Doorways. Openings wide enough to allow easy passage of trucks wherever trucks of any kind may be used should be planned.

A communicating system should be provided, connecting preparation and service units and the dietitian's office.

II. RECEIVING AND STORAGE

In many institutions the receiving facilities and central storeroom are shared by all departments, thus making it possible to employ a receiving clerk and storekeeper to serve the whole organization. Since the most frequent deliveries are those of food, proximity to the food service department is more important than that to other departments, but corridor and service elevator facilities must be accessible to all departments. Storerooms should have a minimum of exits.

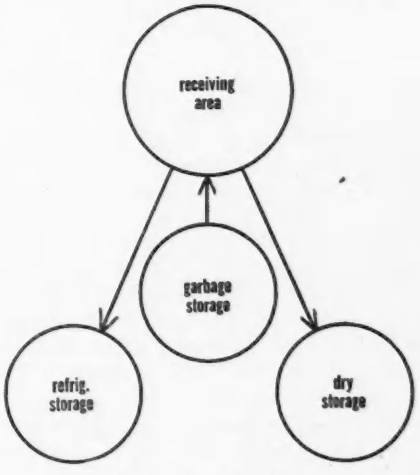
Receiving Area

The receiving area should consist of the receiving platform, an adjacent space where goods are examined and invoices checked, and an office for the receiving clerk in organizations large enough to employ such a person.

The truck zone should be accessible to all types of vehicles, and should be located on a rear driveway or alley, arranged for through-traffic or with ample space for turning around.

Flow Chart 2 indicates the usual relationship of the receiving area and other units. The distance from the receiving area to the storeroom and refrigerators should be as short as possible. If receiving and storage are on the same floor, they should be adjacent; if on different floors, each should be near the freight elevator or conveyor. The office should afford a view of the receiving platform and of all other exits from the receiving area.

The receiving platform must be roofed over, and the height from the driveway should be that of the floor of a standard truck. It is convenient to have a ramp at one side for pedestrians and occasional supplies delivered by other types of vehicle. The receiving platform should be at least 8 ft. wide and long enough to permit the simultaneous unloading of one or more trucks, depending on the anticipated frequency of deliveries. The receiving room should be distinct from the outside platform so that its temperature may be controlled. This room should



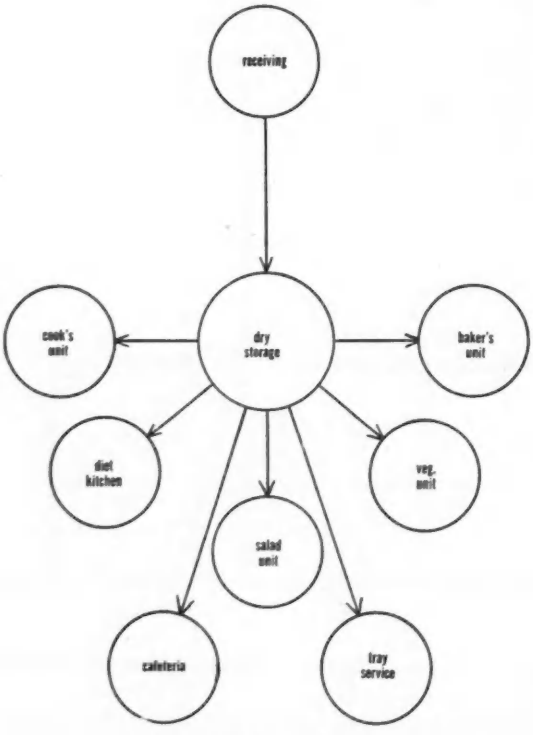
FLOW CHART 2. *Receiving area.*

be large enough to contain the maximum amount of goods likely to be on the floor at one time for weighing, counting, and inspecting. There should be space for a freight scale just inside the entrance, and a beam scale may also be wanted for weighing carcasses of meat. There should be no storage in the receiving room.

Central Storeroom

The term "dry stores" is used to indicate all nonperishable supplies. As related to the food service department, it contains canned goods in case lots, bottled beverages, staple groceries, china, silver, glassware, linen, paper goods, and cleaning supplies.

The main storeroom should be near the receiving room and in a logical line of routing to the kitchen storage and preparation areas, as shown in Flow Chart 3. It should be a cool room without overhead pipes, and should have either cross-ventilation from properly located windows and louvres or artificial ventilation. It must have double doors and must open into a wide corridor or other space sufficient to turn large loaded hand trucks. The storeroom ceiling should be at least 12 ft. high. All of its windows should be guarded with heavy, mesh screening, and all of its doors must lock. The storeroom floor must be so constructed as to bear the additional weight of stacked cases.



FLOW CHART 3. *Dry storage.*

A dispensing unit may be needed for issuing supplies in broken lots. This unit will need a counter and a counter scale.

Before the storeroom is planned, an estimate should be made of the maximum amount of merchandise to be kept on hand, which is influenced by:

(a) The number of departments to be served by the storeroom and their requirements. The amount and variety of supplies for food service will depend on the number of meals served per week and the type of menus used.

(b) The location of the institution. An institution located in a metropolitan area, where property values are high and sources of supply are near, will find it economical to keep small stocks on hand and buy frequently, while one in a low-rent district or in a rural area will need more storeroom space. If the rural institution maintains a farm, space must be provided for storage of produce.

(c) The purchasing policy.

(d) Plans for expansion of the institution.

Many supplies kept in the main storeroom will be stored without unpacking, and for these a large clear floor area is needed. One section of the space may be equipped with adjustable steel shelving in U-shaped arrangement for storage of small items and unpacked goods. An ideal arrangement provides shelves open on both sides so that new goods can be put in at the back.

A separate room, carefully screened, should be provided for the storage of cereal products, and still another room for storing root and other vegetables and fruits which do not need refrigeration. Like other storerooms, this root cellar should be cool, dry, and well-ventilated, but, unlike the others, it should be dark. In both of these rooms enough space should be allowed for cross-stacking and for circulation of air.

Day Stores

In most institutions, and certainly wherever the central storeroom is shared with other departments, there should be a smaller room near the kitchen, called "day stores."

Day stores will serve directly all areas of preparation and service within the food service department and must be between these areas and the point at which supplies enter the department. It must be ventilated and locked.

The day storage room should be large enough to hold food supplies sufficient for a day or two and for miscellaneous small items and part-cases. It will need both shelving and clear floor space for goods in cases and sacks. There will probably also be a need for metal bins or cans for cereals and other groceries which are delivered in sacks. From 100 to 500 sq. ft. should be provided, depending on the size of the institution and the frequency of deliveries from the central storeroom.

Refrigerated Stores

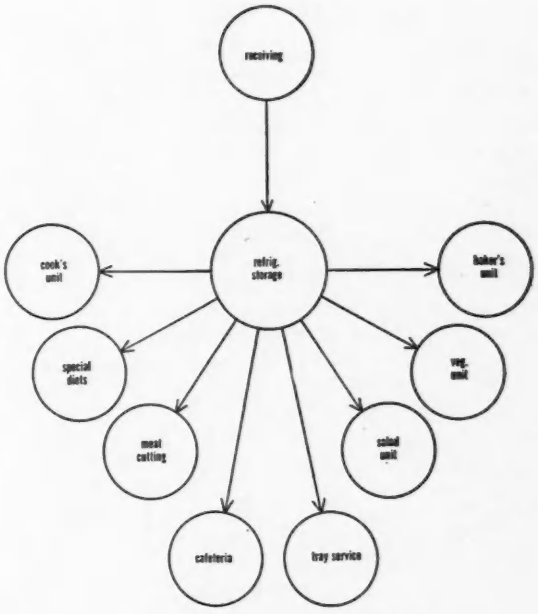
Refrigerators may be located within the food service department, or may be under the control of the storeroom. With the increasing use of frozen foods, the refrigerator is sometimes too large for convenient installation in the kitchen, and it may, therefore, be located in the central storage area. The storage refrigerators within the food service department should be near the point where the food enters, and since all except the meat box will serve various units of the department, they should be placed where they are accessible to all (Flow Chart 4). Sufficient refrigeration should be provided within the working units so that storage boxes can be kept locked and opened with minimum frequency. The following refrigerators will usually be needed:

(a) Below freezing—frozen meat, frozen fruits and vegetables, and ice cream;

(b) Above freezing—meat, fruits and vegetables, and dairy products.

The thickness of insulation required by the various boxes is determined by the difference between the inside temperature required and the outside temperature expected. Sharp boxes should, wherever possible, be planned to open into refrigerated areas, and with as many of their sides as possible flanked by other refrigerators. These anterooms should be large enough for truck movements and should have doors planned with this in view. Insulation should in all cases be depressed in the floor construction so that the floor of the box will be level with the floor outside to permit trucks to be wheeled into the box.

Whether a given institution needs five separate walk-in storage boxes, and what size each should be, are variable factors which depend on the menu, the number of persons to be served, the purchasing policy, and the community resources, each of which must be considered before building. An institution



FLOW CHART 4. *Refrigerated storage.*

having a farm, for instance, will expect to refrigerate its own produce, while in a metropolitan area it may be considered cheaper to buy frequently or pay commercial storage charges than to maintain large refrigerators. A school lunchroom will not serve enough meat to justify having a meat refrigerator, but will use large amounts of milk. Refrigerators should be adequate to avoid crowding and to permit a shelf-arrangement which facilitates putting new stock at the back so as to use old stock first.

It may be economical to plan the garbage refrigerator in a location where it can share the cooling system and insulation of food refrigerators.

III. THE MEAT AND FISH UNIT

The meat cutting area as a separate unit is usually found only in larger institutions. School cafeterias, industrial lunchrooms, and smaller hospitals buy meat already cut and need only refrigerated storage and a meat block placed near the cooking unit.

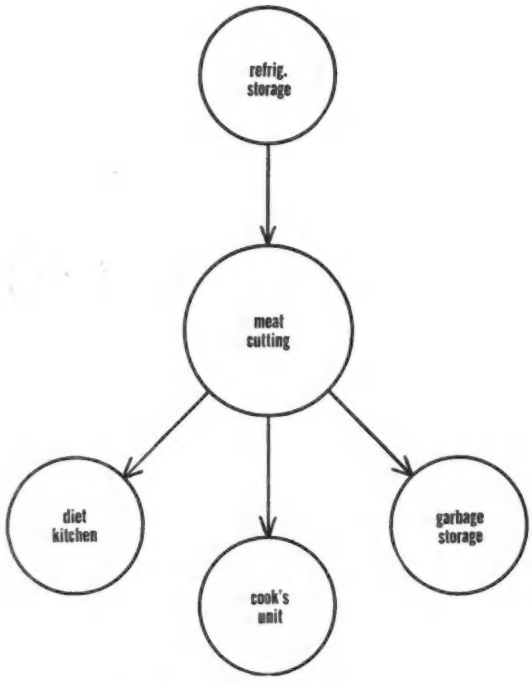
Location

The meat cutting area should be located in a straight line between the meat refrigerators and the cooking unit, and should be near the receiving area to facilitate the proper receiving and handling of meat shipments (Flow Chart 5). The meat will enter the unit, proceed in a logical sequence of preparation, and go on to the cooking unit. A simply planned meat cutting area will eliminate all cross-traffic.

Size

The meat cutting area should have a double sink flanked by drain boards. The sections will be 2 ft. square and from 12 to 14 in. deep.

The meat block is usually placed opposite the sinks, with three sides free and the fourth against a table. A separate block for the preparation of fish is not necessary if the one block is properly cared for, unless the volume of work is large enough to demand two blocks.



FLOW CHART 5. *Meat cutting area.*

Most of the mechanical equipment for this unit may be either pedestal or table type, the selection depending on the amount of work to be done. An electric meat saw for cutting chops and a slicer for bacon are great timesavers in large institutions. The slicer is placed on a table. A burner may be wanted for singeing food. A meat grinder, if one is supplied for the exclusive use of the meat preparation area, will be placed on a table. Oftentimes, however, grinders are placed near the center of the kitchen so that they may also be used for the preparation of vegetables. A scale is necessary for weighing food for the cook.

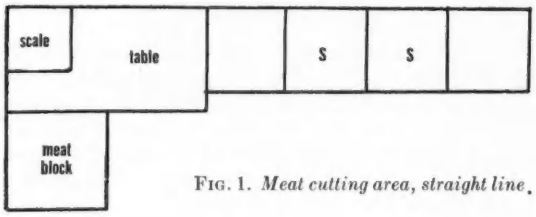


FIG. 1. *Meat cutting area, straight line.*

The size of the unit must be sufficient to accommodate this equipment and to allow for moving meat on hand trucks to the refrigerators. Equipment may be arranged in one of several ways, two of which are suggested in Figures 1 and 2.

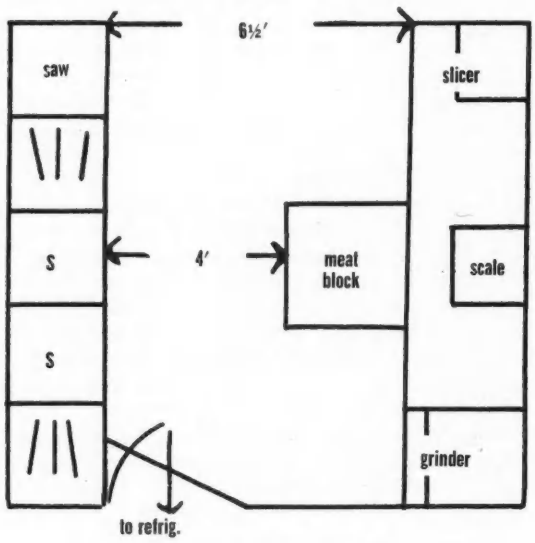


FIG. 2. *Meat cutting area, U-shaped.*

IV. THE VEGETABLE UNIT

The proper amount of space, well-placed sinks, and good drainage are essential in the vegetable area. Vegetables are dirty and need to be thoroughly soaked and washed before being sent to the cook's unit or the salad unit.

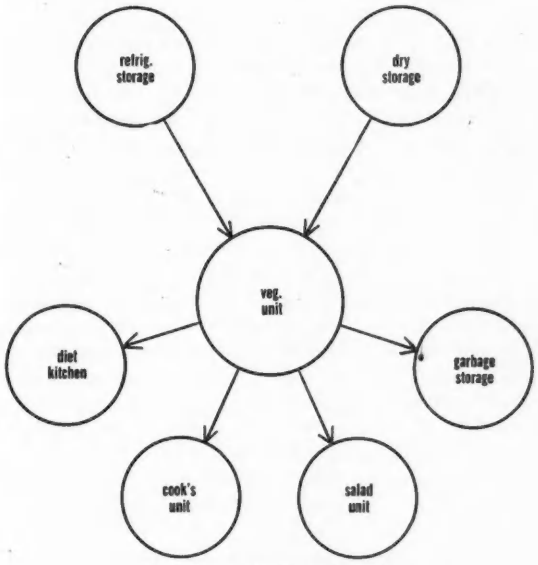
Location

The placement of the vegetable area as a whole is very important. It must be near refrigerated and dry storage and also near the cook's and salad units. Flow Chart 6 shows these relationships.

Size

Sinks are the most essential item in this unit. Two is the minimum—one for soaking vegetables and one for scrubbing. They should be 2 ft. square and from 12 to 14 in. deep, and should be adjacent to the potato peeler, with a clear space allowed beneath the sinks for easy cleaning. Drainboards will flank one end of the sinks if a table model peeler is used, and both ends if the peeler is of the pedestal type.

An ideal arrangement is to have a peeler mounted



FLOW CHART 6. *Vegetable unit.*

on a level with the top of the sinks so the vegetables being prepared may be emptied directly into the sinks, not only saving time but also minimizing the work.

Figure 3 shows a convenient arrangement employed by one large institution. A peeler is mounted at each end of a low, trough-like sink. Workers sit on stools on either side of the sink for the final hand-cleaning of the vegetables. This does not substitute for the standard double-compartment sink, but is in addition to it.

If it is not advisable to have a chopper for the exclusive use of the vegetable area, one should be easily accessible to it.

Work tables should be 2½ to 3 ft. wide. The length will depend on the size of the institution and the complexity of the menu as these factors determine the number of employees who will use the tables. It is not advisable to have tables more than 8 ft. long, for longer tables are too cumbersome to move for proper cleaning. In a straight line unit (Fig. 4), they are at one end of the sinks depending on the work routing. In a parallel unit (Fig. 5), the tables are directly opposite the sinks and the full length of the opposite side. Figure 6 shows an L-shaped unit.

FIG. 3. *Vegetable unit, potato trough.*

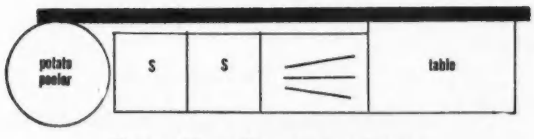


FIG. 4. *Vegetable unit, straight line.*

Shape

The shape of the vegetable unit depends largely on the size of the institution and on the shape of the available space. In larger institutions a parallel area is often used, with sinks, peeler, and drainboard on one side of the "U" and work tables opposite. With employees working back to back and bulky supplies to be handled, it is advisable to allow a 6-ft. aisle. If an increase in size of the institution occurs or a more complex menu is served causing the unit to become too crowded, a duplicate vegetable area should be installed or one process of the preparation of vegetables may be given a unit by itself. For example, a potato peeler, sinks, and a work table may be installed adjacent to the main vegetable area. This will eliminate entirely the preparation of potatoes in the main vegetable area.

The vegetable area must be planned so there will be no cross-traffic. Employees from other units will not find it necessary to enter the vegetable area. Vegetables will enter the unit from dry or refrigerated storage, go to each piece of equipment in proper sequence and out to the cook's or salad unit.

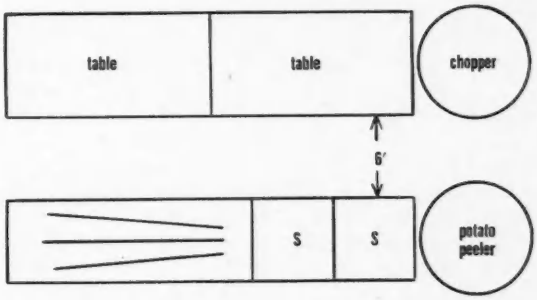


FIG. 5. *Vegetable unit, parallel arrangement.*

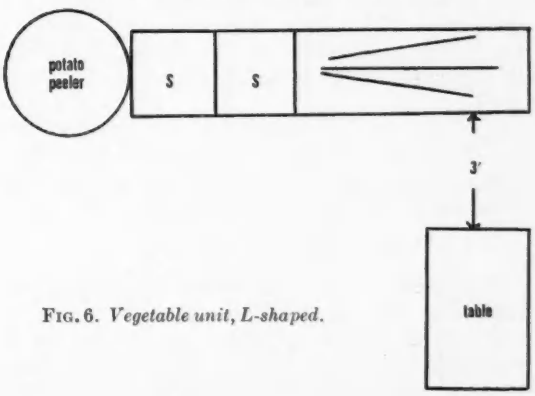


FIG. 6. *Vegetable unit, L-shaped.*

V. THE COOK'S UNIT

Floor Space

The cook's unit in its simplest form (Fig. 7), consists of a range with oven space, and a work table or series of tables known as the cook's table—the table or tables to be the same length as the cooking equipment, parallel to it, and 4 ft. from it. The heated equipment is usually covered by a hood extending 1 ft. beyond the range area in all directions. Additions to this minimum depend upon the size of the institution—that is, the largest number of persons served at one meal—and the complexity of the menu. The floor space depends upon the equipment and the number of workers required.

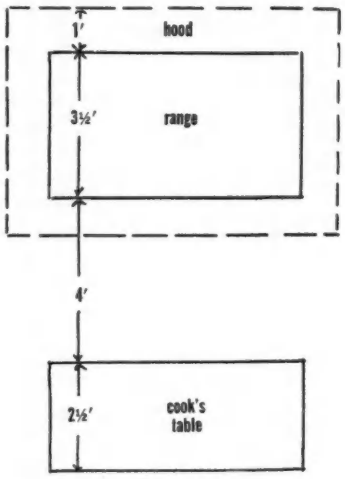


FIG. 7. *Cook's unit, straight line.*

All cooks' units should be approximately 10 ft. in width, made up of a table $2\frac{1}{2}$ to 3 ft. wide, 4 ft. between the table and range, and an average $3\frac{1}{2}$-ft.-wide range. If the unit is placed against a wall or back-to-back with other equipment, there should be an additional 2 ft. of space allowed for adequate and easy cleaning behind the range. The length of the unit varies with the size of the institution, the complexity of the menu, and the consequent amount of equipment, but the width always remains constant.

A recent study indicates that the proportionate size of this unit decreases as the size of the institution increases, and the floor space per person served decreases as the institution becomes larger.

Equipment and Arrangement

Some cooks' units which seem too small may be inefficient due to poor arrangement or routing rather than because of actual size limitations, or they may be used for menus more elaborate than those for which they were intended. School lunch rooms require less space per person, since only one simple meal is served each day.

The arrangement of the equipment depends upon the size of the institution and the amount of equipment required for the type of menu served. If there is a great deal of large equipment needed, it should not be stretched out end to end; it can double back upon itself (Fig. 8), be arranged in an L-shape (Fig. 9), or U-shape (Fig. 10), or divided (Fig. 11), thus limiting unnecessary walking. Any one of these arrangements is satisfactory if sufficient space is left between the pieces of equipment for easy cleaning. That is, if the steam kettles are placed back of the range instead of in a straight line beside it, there should be at least 2 ft. of clearance space allowed for cleaning between the back of the range and the line of kettles or other equipment.

The amount of equipment necessary for adequate service in institutions of various sizes has been found

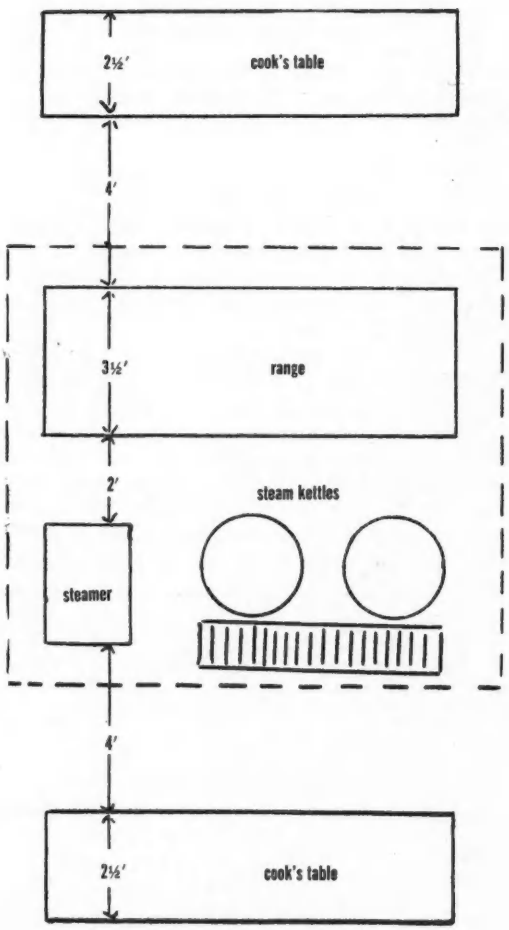


FIG. 8. *Cook's unit, back to back.*

to increase with the size of the institution and the complexity of the menu. It was found that the equipment reported from various institutions compared favorably with the amount listed by Bryan (1) as necessary. The small institution (serving less than 100 persons) requires only one steam kettle or none at all; one or no steamer; from one to two sections of range; two ovens, either under the range or beside it in a bank; and one mixer. Larger institutions require the same basic equipment only in larger quantity. For example, an institution serving between 500 and 1000 persons would need on the average three to five steam kettles; one steamer of three sections; two broilers, one broiler and one fryer, two small fryers, or none at all depending upon the type of food served; three sections of range; four to six ovens; and one mixer with bowls of varying sizes.

If space permits, it is convenient to have the ranges built as cooking tops without ovens, and the ovens as two stacks, each with three decks. If space is limited, ovens must be put in the ranges, so that only one stack of ovens need be accommodated.

There should be a conveniently located refrigerator assigned to this unit.

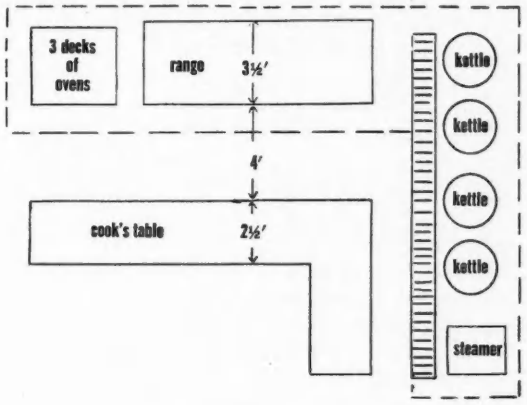


FIG. 9. *Cook's unit, L-shaped.*

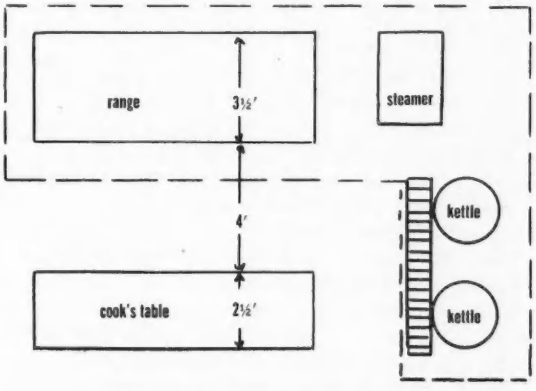


FIG. 10. *Cook's unit, U-shaped.*

Routing

The cook's unit is usually placed forward in the center of the main kitchen on the long axis of the room, and the subordinate processes are located

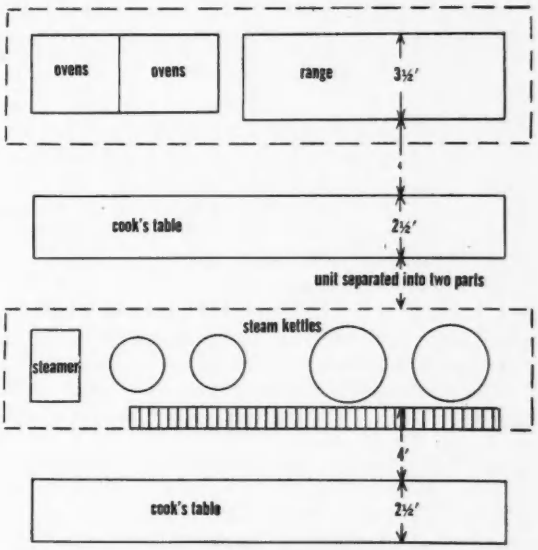
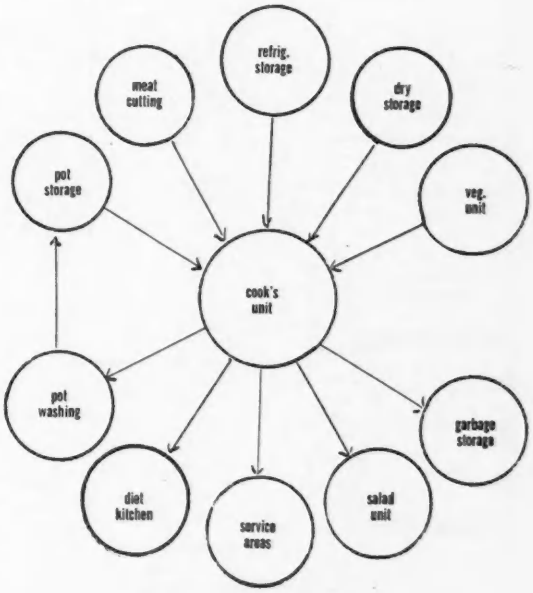


FIG. 11. *Cook's unit, divided.*



FLOW CHART 7. *Cook's unit.*

around the sides of the room in the order of work performed. In a narrow room the cooking unit may be placed against a wall on the long axis, provided, of course, there is clearance space behind for cleaning. Lines of travel should be carefully routed to avoid waste of time and confusion in service. In the larger institution it is usually found most satisfactory to have the cook's unit in the center of the room with the other units and preparation areas arranged around it so that the logical work route goes in either a clockwise or a counter-clockwise direction. (Flow Chart 7.) In smaller establishments it is often convenient to place the cooking unit near one side wall or partition and to arrange the other units so that the routing is from left to right or from right to left. The cook's unit should be adjacent to the vegetable preparation unit, the pot and pan unit, a hand washing sink, and the service units. The simplest arrangement is usually the most convenient and the easiest to keep in order.

VI. THE BAKER'S UNIT

Size

A varied menu requires a larger baking area since several employees are needed to accomplish the work. Also, a varied menu requires more space for storage of raw materials and finished products and usually requires more, although not necessarily larger equipment. However, if the bakeshop is too large with the resulting waste of time and motion, the output will be decreased. Menus may be simplified by decreasing the number or changing the type of desserts.

The menu also affects the amount of equipment needed. Space must be allowed for all the equipment and for clearance for that equipment. Space is needed for opening and closing oven doors, swinging a peel, and removing the baked product without interfering in someone else's work or path. Garbage cans and movable trucks need space.

The baker's unit should be planned to allow for increases in census by rearranging present equipment or through the addition of new equipment rather than by remodeling.

The unit should be large enough to allow for the maintenance of high food standards coupled with good sanitation. High standards are hard to maintain in a small unit, because articles are apt to be piled on top of one another.

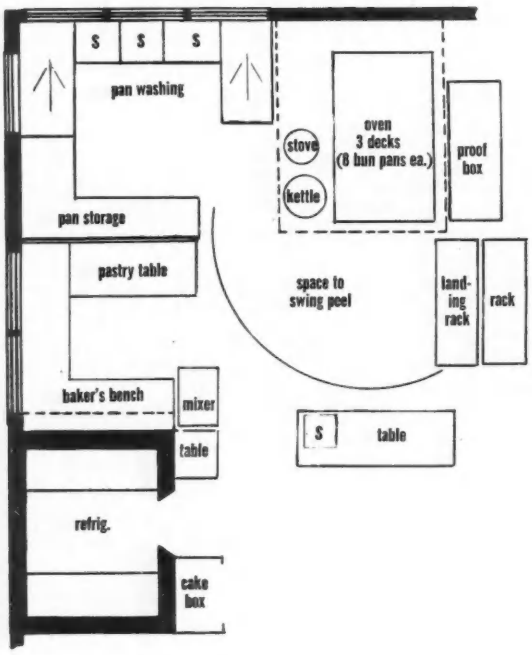


FIG. 12. *Baker's unit, deep oven.*

Shape

The shape of the baking unit will depend to a great extent on the equipment to be placed in it. It may be a square, rectangular, L-, U-, or irregular shape. The irregularly-shaped baking areas are often found in kitchens in which units share equipment. Regardless of the shape of the unit, the length should not be more than twice the width (2). The logical arrangement of the equipment frequently provides for an area which is either a square or a rectangle. The shape of the baker's unit depends also on its relation to other units in the kitchen.

Logical Arrangement Within the Unit

In carrying out the straight line process, routing the work from raw materials to finished product, the following points should be kept in mind. Staples should be within reach of the working area; garbage cans close by; working areas near the ovens; landing racks by the ovens; and pot and pan sinks close to the storage racks and to the working space. Space should be allowed to place trucks near the areas where they will be used. If possible, a table on which to set articles while opening and closing refrigerator doors should be near the refrigerator. Most units require a walk-in refrigerator either in or adjacent to the bakeshop.

There seems to be a trend toward the use of shallow ovens and away from the use of deep ovens. The shallow ovens do not require a peel, can be cleaned more efficiently, and do not create awkward

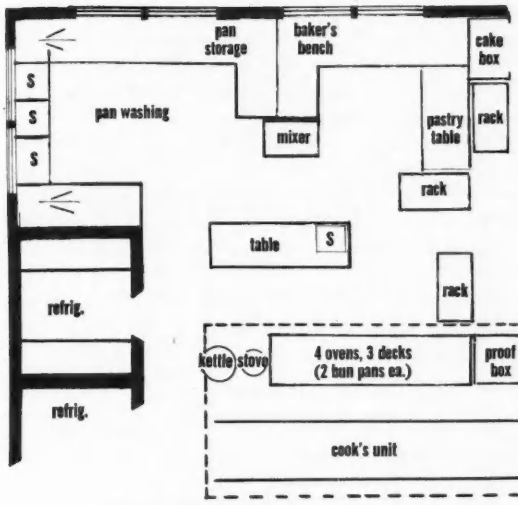
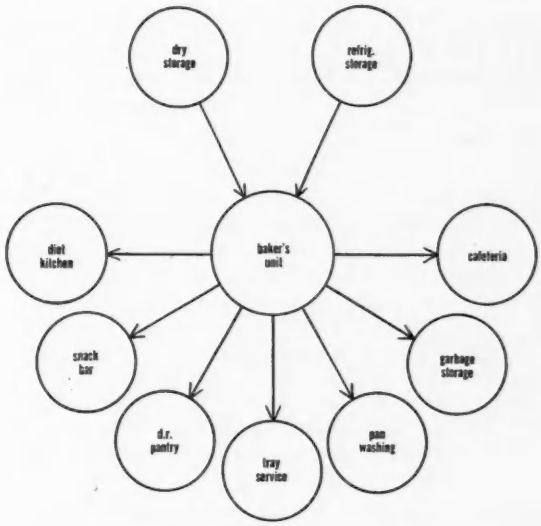


FIG. 13. *Baker's unit, shallow ovens.*



FLOW CHART 8. *Baker's unit.*

corners. Rotating or reel ovens should also be considered for large installations (Figs. 12 and 13).

Relation to Other Units

Here again the straight line principle should be followed (Flow Chart 8). The baker's unit should have easy access to the dry and refrigerated storage areas. It should not be too far from the other kitchen units and not necessarily a separate room. If equipment is to be shared with other units, the common equipment should be adjacent to both units. The bakeshop should be close to the service unit whether it be a cafeteria counter, tray line, truck loading line, service pantry, short order counter, or diet kitchen.

Ice Cream and Bread Making

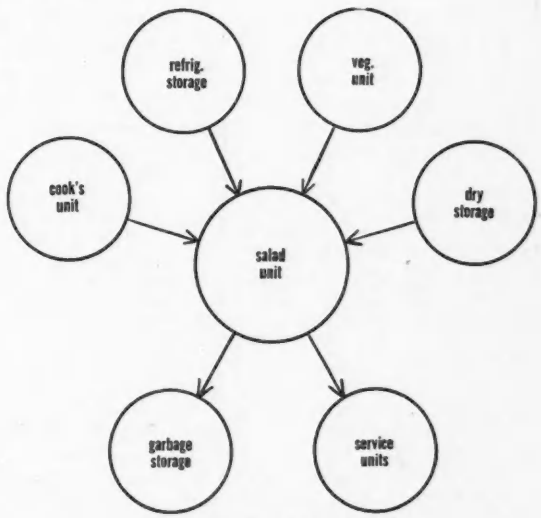
Many institutions purchase ice cream and bread. If, however, this work is done in the food service department, these products are usually made in the baker's unit. Both are highly technical operations requiring specialized planning. Units for making ice cream must meet sanitary regulations.

VII. THE SALAD UNIT

Location

A salad preparation center receives ingredients from several sources. The storeroom will supply canned fruits, canned vegetables, gelatin, and many garnishes; and the cook's unit will be the source of cooked vegetables, cooked dried fruits, and cooked dressings. From the dairy refrigerator will come cheese and ingredients for dressings. Fresh fruits and vegetables dominate, however, and consequently the vegetable and fruit preparation center is the salad unit's principal source of supply.

Convenient access to this center is, therefore, indicated. However, a more important factor to consider in the placement of the salad preparation center is its location in relation to the service areas. Ready and easy access to the prepared and chilled salad at the point of service is by far the most important factor. A salad unit is best situated, then, if the routing is in a straight line from the principal source



FLOW CHART 9. *Salad unit.*

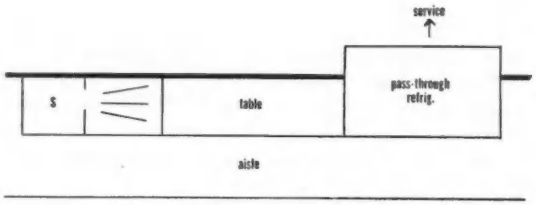


FIG. 14. *Salad unit, straight line.*

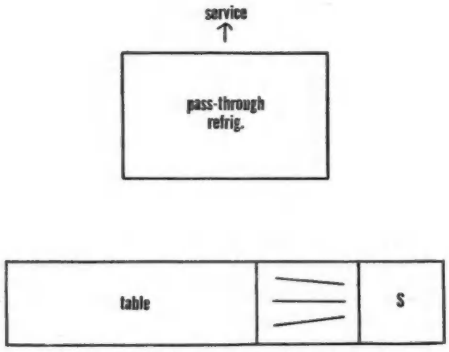


FIG. 15. *Salad unit, parallel arrangement.*

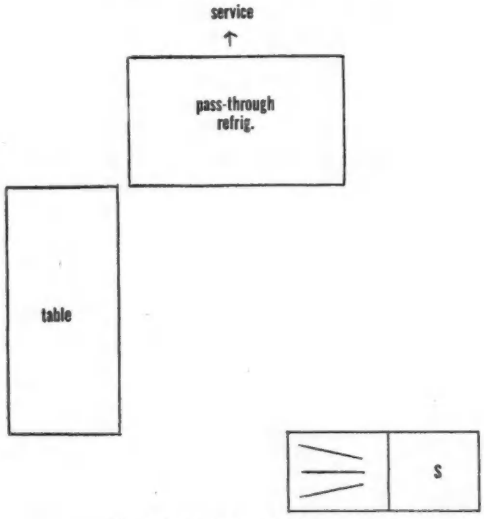


FIG. 16. *Salad unit, U-shaped.*

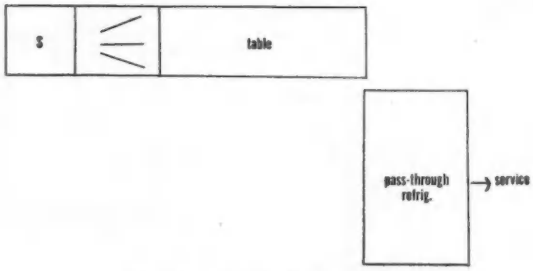


FIG. 17. *Salad unit, L-shaped.*

of supply to the service area with concentration of the unit as near the service centers as possible (Flow Chart 9). In other words, the shortest haul between salad preparation and/or salad refrigeration and the service point is desired.

Hospitals must supply two food services—the personnel and the patients. Consequently, the most convenient and efficient location of the salad service will be determined by the relative positions of the two service centers and the consideration of the shortest haul to the heaviest or the more complicated service. The use of two salad refrigeration centers, one for each service, may be practical in some instances.

Equipment

The salad unit consists essentially of a table, a sink, and a refrigerator. The table at which the actual salad preparation occurs should be large enough to accommodate the necessary supplies plus a work area sufficient for the mixing and arrangement of the salads on trays of chilled dishes. A sink and drainboard for the draining of certain salad ingredients and for the additional preparation or handling of fruits and vegetables is best located at one end of the work space. If a larger table and two or more workers are employed, the sink may be more conveniently located in the center of the work areas, thus eliminating to some extent the crossing of work routes. In larger institutions a two-compartment sink or perhaps two sinks may be highly desirable due to the larger quantity and greater variety of materials being handled. Convenient access to a mixer and a chopper is a necessity that should also be considered when planning this unit.

One of the most important principles of good salad making is that the salad be properly chilled when served. Refrigerator space for the holding of dressings and garnishes, the chilling of dishes, and the short-time storage of salad ingredients is essential; and, unless served immediately, there must be ample space for holding the trays of arranged salads. The amount of refrigeration will depend on the method of service. For example, if all salads are prepared prior to service, space must be allowed for the total number to be chilled at one time. If only part of the salads are prepared before service and the remainder prepared as this supply dwindles, much less refrigerator space will be required.

We have said that the salad unit is best located when concentrated at the point of service. However, if this is impossible and the entire unit cannot be concentrated at this center, every effort should be made to place the salad refrigerator at the service point or as near it as possible. This splits the unit and involves careful consideration of an easy, short haul from the salad table to the salad refrigerator in addition to the other factors determining the best

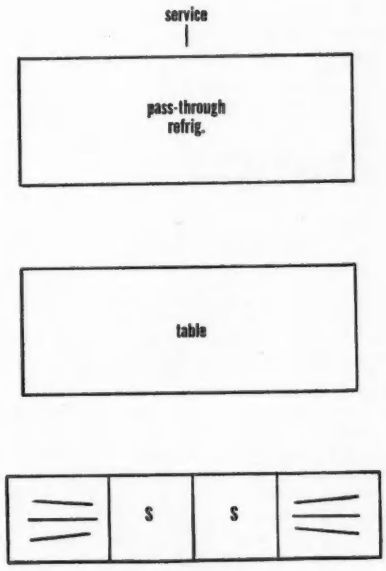


FIG. 18. *Salad unit, for two workers.*

location of the unit itself. The ideal arrangement for salad preparation and service is a compact unit with a left to right work route and a pass-through refrigerator opening directly into the service area.

Shape

The unit may be straight, parallel, U-, or L-shape (Fig. 14–17). If two or more salad workers are employed, the unit shown in Figure 18 may suggest an efficient arrangement.

Whatever the shape of the unit or arrangement of equipment, there should be a minimum space allowance of 4 ft. on the exposed work sides. This permits freedom of movement for the workers and insures ample space for the use of large movable mixing bowls, carts, and other large equipment.

In some situations it may be desirable to add a table to this unit for making sandwiches.

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(1) BRYAN, M. DEG., AND HANDY, E. H. Furnishings for Residence Halls. New York: Columbia University Bureau of Publication, 1933.
(2) WEST, B. B., AND WOOD, L.: Food Service in Institutions. 2nd ed. New York: John Wiley and Sons, Inc., 1945.

Book Reviews

Essentials of Pediatrics. By Philip C. Jeans, A.B., M.D., Winifred Rand, A.B., R.N., and Florence G. Blake, R.N., M.A. 4th ed. Philadelphia: J. B. Lippincott Company, 1946. Cloth. Pp. 627. Price $3.50.

This book continues to be an outstanding presentation of the problems of child care and child guidance confronting the nursing profession. According to the authors, this new revision has been based on several important objectives: one, the incorporation of the newer knowledge and developments in pediatrics; another, the inclusion of more nursing care information; and third, a rearrangement of the contents into units to conform with the recommendations of the curriculum for schools of nursing prepared by the National League of Nursing Education. The five units which have been developed are: Orientation; Growth, Development, Hygiene and Training of the Infant and Child; General Nursing Care; Nursing in Diseases of Children; and Nutrition and Nutritional Diseases. The latter unit covers the information necessary to understand the nutritional requirements of the child and the proper selection and preparation of food to approximate these requirements.

The new co-author, Florence G. Blake, has assisted in expanding the discussion on nursing care. A more comprehensive interpretation and presentation of specific techniques gives a better understanding of the principles of child guidance as related to the total care of the sick and convalescent child.

As might be expected, the application of the principles of child guidance in the care of sick and convalescent children includes many of the problems which arise in feeding children and in understanding parents.

So Your Child Won't Eat. By Hilda Sachs. Introduction by Samuel Karelitz, M.D. New York: Robert M. McBride and Company, 1946. Cloth. Pp. 103. Price $2.

This readable book is for mothers of children from two to seven years of age. The author, a mother herself, has "won her spurs" through first hand experiences with the problems of feeding her own child. She met her own problem by consulting scientific works—both nutritional and psychological—and by using common sense in application.

Dr. Karelitz, a pediatrician, introduces the book with a discussion of the modern psychology of feeding a child. Mrs. Sachs ably amplifies these principles with the details necessary to prepare and serve food attractively, to plan variety in menus—and with an eye to color—and to provide nutritional balance. The lists of sources of various nutrients are weak, largely due to the lack of quantitative data, and while the book on the whole can serve as a handy reference, dietitians may wish to supplement the information on food composition when advising mothers. It will greatly aid the mother who wants to make feeding a child a pleasure rather than an anxious chore.

Current Literature

Contributed by Janette C. Carlsen, Ethel M. Miller, and Janet Engebretsen, Dietary Department, Johns Hopkins Hospital; Marjorie M. McKinley, Women's Educational and Industrial Union, Boston; Marian T. Straube and Lorraine G. Weng, University of Chicago Clinics; and Mrs. Margaret Shatswell Price, Winter Park, Florida.

AMERICAN JOURNAL OF THE DISEASES OF CHILDREN

Vol. 72, September, 1946

*Blood amino nitrogen levels in pancreatic disorders. C. D. West, J. L. Wilson, and R. Eyles.—p. 251.

Blood Amino Nitrogen Levels. Extensive research was done on a group of children ranging in age from a few weeks to six years; there were four normal infants, twenty-one sick ones with no pancreatic disorders, and seven children with cystic fibrosis of the pancreas. After fasting, these children were given test meals of casein, gelatin, acid hydrolysate of casein, and pancreatin with casein. In the normal children and those with no pancreas disorder, the amino nitrogen level of the blood increased within 1¼ hr. after ingestion of the test meal. The nitrogen curve of the group with pancreatic defects did not change for 3 to 4 hr. and then only slightly. So different was the response in these groups that it was felt the test meal could serve as a diagnostic test for celiacs and other patients with pancreatic defects. When the group with pancreatic disorders was fed the casein and pancreatin, response was accelerated.

AMERICAN JOURNAL OF THE MEDICAL SCIENCES

Vol. 212, October, 1946

*Addison's disease in the Negro. J. W. Conn and K. P. Mathews.—p. 404.
*Plasma protein levels in diabetic retinitis. R. W. Schneider, L. A. Lewis, and E. P. McCullogh.—p. 462.

Addison's Disease. Since 1907, only twenty-one cases of Addison's disease in Negroes have been reported. Recently, five new cases in Negroes have been reported from the University of Michigan Hospital, Ann Arbor. It is felt that one of the chief reasons why there are so few cases is because the diagnosis is generally missed. Nausea, vomiting, loss of weight, asthenia, and pigmentation as the classical symptoms of Addison's are not as clear cut in the Negro patient as in the white. Unless the patient himself has observed the change in pigmentation, the doctor often cannot detect it. Of the three patients diagnosed clinically, all were put on a high-carbohydrate diet, salt and desoxycorticosterone acetate regime, and were sent home in an improved condition.

Plasma Proteins. This study was undertaken to determine the correlation between certain alterations in the plasma proteins and retinal changes and to determine whether a high-protein intake would alter either or both disorders. From a group of thirty-one diabetics having retinitis, ten were selected as the experimental group. Four patients received relatively low protein for ten months; there was little if any plasma protein change and no improvement in the eye condition. The other patients were on a high-protein diet for as long as six months. Not only did the plasma protein change but the albumin globulin ratio changed and there were no hemorrhages. The study shows that adequate protein will maintain plasma levels, but from 120 to 140 gm. are needed to correct deficiencies and to show the greatest retinal improvement. More work needs to be done in this direction, but it would appear that a high-protein diet may be a useful adjunct in the management of diabetic retinitis.

THE AMERICAN JOURNAL OF PHYSIOLOGY

Vol. 146, October, 1946

*Hyperchromic anemia produced by choline or acetylcholine and the induced remission of both by folic acid or liver injection. The probable mechanism of action of liver and folic acid in treatment of anemia. J. E. Davis.—p. 404.

Hyperchromic Anemia Produced by Choline or Acetylcholine. From these experiments it was found that acetylcholine can produce hyperchromic anemia. Acetylcholine that is liberated physiologically in the body is considered a neuro-hormone or chemical mediator of nervous impulses and very little is known about the effects of a possible excess of this hormone in an intact body. It is believed that choline induced anemia is actually produced by acetylcholine by producing vasodilation and increased blood flow and oxygen to bone marrow—thus depressing erythrocytogenesis. The giving of both folic acid and liver injections caused significant reticulocytosis and therapeutic remissions of anemia. It appears that both agents act with some other substance (or are acted upon by other substances) to produce cholinesterase, and an increase in the cholinesterase activity in the body is probably needed for treatment of anemia.

AMERICAN JOURNAL OF PUBLIC HEALTH

Vol. 36, October, 1946

*Procedure for bacteriological examination of brined, salted, and pickled vegetables and vegetable products. J. L. Etchells and J. D. Jones.—p. 1112.

Bacterial Examination of Brined, Salted, and Pickled Vegetables and Vegetable Products. The article presents in outline form methods for the examination of certain brined, salted, and pickled vegetables and vegetable products. A

At your *fingertips!*

Meat Loaf (for 50)
INGREDIENTS
AMOUNTS OR WEIGHTS
DIRECTIONS
Ground meat*
6½ pounds
Day-old bread crumbs
1 quart
Finely cut onion
½ cup
Finely cut celery
½ cup
Finely cut green pepper (optional)
¾ cup
Pet Milk
2 tall cans
Salt
3 tablespoons
Pepper
½ teaspoon
Meat drippings or other shortening
3 tablespoons
*Pork, veal, lamb, beef, or a mixture of these meats can be used.
Mix together the ground meat, bread crur onion, celery, green pepper and milk. Add and pepper and mix thoroughly Shape 5 loaves 9 x 4 x 4 inches thick and weighi about 2 pounds each. Place in well greas baking pans. Place meat drippings or shorten ing over top of loaves Bake in moderately slow oven (350° F.) until brown and tender, basting with drippings in the pan at 15-minute intervals. Serve hot or cold. Makes 50 servings of 3 ounces each.
NOTE. Two pounds of the 6½ pounds of ground, raw meat can be of the cooked, left-over variety
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summary table presents six microbial groups to be tested for, culture media to be used, and classes of fermentative products in which microbial groups are likely to be present.

THE AMERICAN JOURNAL OF SURGERY

Vol. 71, October, 1946

*Management of sharp-pointed foreign bodies in gastrointestinal tract. R. R. Best.—p. 545.

Management of Sharp-Pointed Foreign Bodies in the Gastrointestinal Tract. Sharp-pointed instruments pass through the gastrointestinal tract without penetrating and perforating the wall due to bowel wall trigger reaction, resulting in a firm contraction of the muscular wall which rejects the foreign body, provided no firm wall backs up the other end of the sharp object. Usual treatment is watchful waiting with careful observation and repeated fluoroscopic or X-ray examinations. Only occasionally will surgery be indicated. There seems to be no need for special diet during the period of observation though mineral oil in small amounts several times a day may seem to prevent obstipation in the distal half of the colon. Surgery should be instituted only on appearance of threatening signs and symptoms of perforation or when there is more than twenty-four to forty-eight hours' delay in the passage of the object at any point along the gastrointestinal tract.

BRITISH MEDICAL JOURNAL

No. 4476, October 19, 1946

*Teeth of 5-year-old London children. M. Mellanby and H. Coumoulos.—p. 565.

Teeth of Five-Year-Old London Children. The dental condition of comparable groups of five-year-old children in 1945 and 1943 is described and discussed, and is compared with that found in 1929. It is suggested that the better condition of the teeth of five-year-old children in 1943 and 1945 as compared with 1929 was due to the increased calcifying properties of the dietary of pregnant women, infants, and young children during recent years, and that the improvement observed in 1945 as compared with 1943 was due in the main to the longer period the teeth examined had been influenced by the type of diet made available immediately before and during the war years.

CANADIAN JOURNAL OF PUBLIC HEALTH

Vol. 37, September, 1946

*Nutritional aspect of a school health study in Marysville, New Brunswick. J. F. Webb and F. B. Swan.—p. 399.

Nutritional Aspect of School Health Study. A physical examination and a study of food habits conducted on 224 children indicated that the health of 61 per cent was satisfactory, while 39 per cent were graded unsatisfactory. Dental care was the outstanding need. For most children, the use of protective foods was considered to be inadequate. Many meal patterns, particularly for breakfast and supper, were unsatisfactory. There was a gradual deterioration of food habits with increasing age. There is great need for nutritional education to change food habits.

ENDOCRINOLOGY

Vol. 39, July, 1946

*The production of alimentary glycosuria by forced feeding in the rat. D. J. Ingle.—p. 43.

Glycosuria. To study more thoroughly the tolerance limits of normal animals to carbohydrate, normal rats were force-fed a high-carbohydrate diet at different rates of increment until death. Male rats were used and were maintained on Purina Dog Chow until they reached a weight of 300 gm. They were then fed a high-carbohydrate fluid diet by stomach tube in increasing amounts until the normal caloric intake for rats of this weight was reached. They were maintained at this level for seven days; thereafter, the amount was increased at a certain rate per day until the death of the animal.

Very large amounts of carbohydrate were tolerated by each rat before the development of alimentary glycosuria. After the limit of tolerance was exceeded, each rat excreted significant amounts of urinary glucose. Within a wide range of increment in overfeeding, the level of tolerance was approximately the same for each group and was relatively independent of final body weight. The longest period that any rat had glycosuria prior to death was sixteen days. Only a few gross pathologic changes were observed.

HOSPITALS

Vol. 20, October, 1946

*What is the current practice in the formula room? M. Gillam.—p. 80.

Current Practice in the Formula Room. A study was made of the formula rooms in eighty-three hospitals. This study was initiated in the form of a questionnaire to acquire data on present formula room methods. Sixty-four per cent of the formula rooms are supervised by graduate nurses and 36 per cent by dietitians. Some of the suggestions concerning special equipment which has proved valuable included: electric mixer for powdered milk to give it a smooth texure in ½ min.; bottle washer and sterilizer; steam cooker especially designed for making formulas and equipped with a faucet; specially designed water cooler; syphon device for pouring formulas into bottles; and special bottle racks. The hospitals reporting are about equally divided on the use of terminal sterilization and aseptic technique and on the method of sterilization whether by autoclave or nonpressure sterilizer.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

Vol. 132, October 19, 1946

*The endocrine regulation of carbohydrate metabolism. D. Stetten.—p. 373.
Digestibility of fat. Editorial—p. 388.
Toxemias of pregnancy. Editorial—p. 391.

Vol. 132, November 2, 1946

*Insulin and diabetes mellitus. L. Palmer.—p. 502.

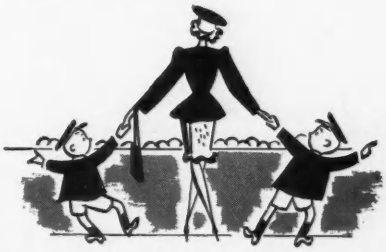
Vol. 132, November 9, 1946

*Recognition and treatment of early vitamin deficiency states. D. Cayer.—p. 558.
*Canities and alopecia in children associated with avitaminosis. A. Chavarria, L. Goldman, C. Saenz-Herrera, and E. Cordero-Carvajal.—p. 570.
*Thiamine utilization and yeast. Editorial.—p. 582.
Skin diseases and vitamin A. Editorial.—p. 583.

Carbohydrate Metabolism. The precise role of insulin in carbohydrate metabolism has never been determined. This paper is presented as a possible explanation of the process. It is pointed out that glucose is to all intents and purposes metabolically inert unless it undergoes phosphorylation to glucose-6-phosphate, a process catalyzed by the enzyme hexokinase. The presence of a specific inhibitor of hexokinase has been demonstrated in the anterior pituitary gland. When present in excess, this material retards the phosphorylation step in the breakdown of carbohydrate. The theory is presented that insulin acts by abolishing this inhibiting factor, thus allowing the hexokinase to work.

DO YOU KNOW HOW TO BUY ORANGES?

QUICK QUIZ

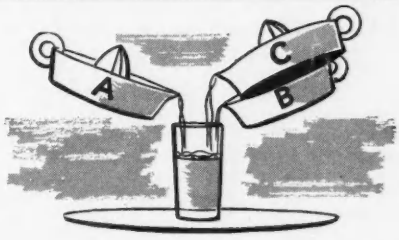


1. Should I buy a "juice" or an "eating" orange to get the better value?

For the best value buy the versatile kind that serves *both* purposes. Surveys show that of a dozen oranges bought for home consumption, 7 or 8 will be used for juice, 4 or 5 for eating and recipes.

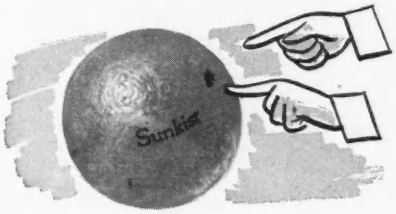
2. What kind of orange is versatile enough for every kind of use?

The California navel orange. Any winter orange will give juice, but only the California navel orange is easy to peel, slice and section for eating and recipes. And it has no seeds—navels are the only absolutely seedless oranges.



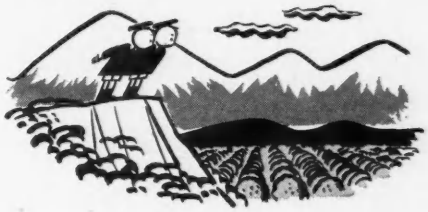
3. What about the kind of juice I'll get from navel oranges?

Richer juice! Six-year independent tests prove that California navel oranges give more vitamins C and A, more calcium per glass. Plus valuable amounts of other needed minerals and B vitamins.



4. How do I recognize a navel orange?

Easy! It has a navel, of course. Besides, you can tell these finer oranges at a glance by the high, bright color of their skins—a token of their richer, true orange flavor.



5. Why aren't navel oranges grown everywhere since they're so good?

Because only in the sheltered valleys of California and Arizona does nature provide the right combination of fertile soil, sunny days and cool nights they need.

6. Then shall I just ask for "navel oranges"?

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CALIFORNIA NAVEL ORANGES

BEST FOR JUICE – *and Every use!*

Insulin. This paper is a summary of the majority opinion and present policies of the large diabetic clinics in regard to the use of insulin in the treatment of diabetes mellitus. A brief history of insulin is given, and the various types of available insulin are discussed.

It is estimated that there are about one million diabetics in the United States, and that at least half are using insulin. It seems likely that many of the other 50 per cent would benefit from its use. Somewhat less than half of the total known cases can be controlled for a time without insulin on an adequate diet with a minimum caloric level. The rest require insulin; about half of these may be controlled on protamine insulin alone. The average total dose is about 40 units daily. Other phases of insulin therapy are discussed: the type to be used, its use during such complications as infections and pregnancy, coma, and insulin reaction. The need for an official insulin syringe is pointed out.

Vitamin Deficiency States. Since severe deficiency diseases are no longer common in this country, attention is now being focused on subclinical avitaminosis. Diagnosis should depend not only on symptoms, but on recognition, of factors such as poor absorption, inadequate intake, and increased requirements. A dietary history should be taken, and laboratory findings will be helpful in diagnosis.

The basic treatment of early deficiency states is to induce the patient to take an adequate diet. Food undoubtedly contains still unrecognized factors necessary for proper nutrition, factors which are not present in purified combinations of vitamins. Where indicated, however, the doctor may, in addition to an adequate diet, prescribe the specific substances in appropriate dosage. Where deficiency actually exists, satisfactory response will follow within one to three weeks.

Canities and Alopecia in Children. In Costa Rica characteristic changes in the hair have been noted in young children with severe avitaminosis. Depigmentation, loss, and increased fragility of the hair are present. The changes are easily reversible if the patient survives the extreme vitamin deficiency state. Improvement may be produced by an adequate diet alone, or together with polyvitamin mixtures of the B-complex. Similar severe changes were not observed in the hair of adults with decided vitamin deficiency syndromes.

Thiamine Utilization. It has been found that the use of live bakers' yeast results in increased fecal loss of thiamine. Therefore, it can no longer be regarded as a satisfactory source of this vitamin for human subjects. However, bakers' yeast cells killed by heat appear to be a good source, and dried brewers' yeast is an excellent source of thiamine as well as other B vitamins.

THE JOURNAL OF BIOLOGICAL CHEMISTRY

Vol. 165, September, 1946

*Chemical determination of riboflavin. M. L. Scott, F. W. Hill, L. C. Norris, and G. F. Heuser.—p. 65.

Chemical Determination of Riboflavin. A chemical method for the determination of riboflavin in foodstuffs is presented. A number of food materials have been assayed for riboflavin by the microbiological method and the values compared with the chemical method. The results were in excellent agreement.

THE JOURNAL OF NUTRITION

Vol. 32, October 10, 1946

*The role and efficiency of animals in utilizing feed to produce human food. L. A. Maynard.—p. 345.

*Vitamin B complex studies with diets differing in the carbohydrate component. H. R. Skeggs and L. D. Wright.—p. 375.

*Further experiments on the relation of fat to economy of food utilization. I. By the growing albino rat. E. B. Forbes, R. W. Swift, W. H. James, J. W. Bratzler, and A. Black.—p. 387.

*Dental caries in the cotton rat. VIII, Further studies on the dietary effects of carbohydrate, protein, and fat on the incidence and extent of carious lesions. B. S. Schweigert, E. Potts, J. H. Shaw, M. Zepplin, and P. H. Phillips.—p. 405.

*The nutritive value of canned foods. Changes in the vitamin content of foods during canning. N. B. Guerrant, M. G. Vavich, O. B. Fardig, R. A. Dutcher, and R. M. Stern.—p. 435.

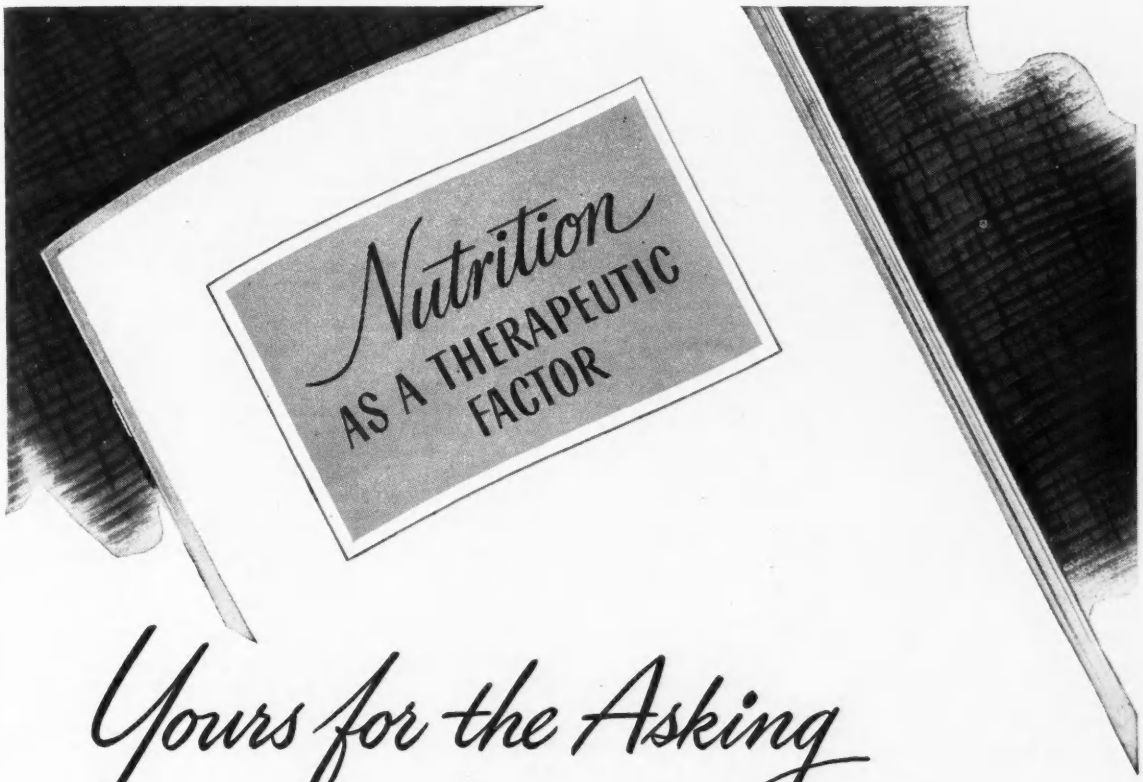
*Diet of mother and hydrocephalus in infant rats. L. R. Richardson and A. G. Hogan.—p. 459.

Feed Utilization by Animals. While the feeding of animals results in more palatable and more digestible forms of food nutrients for human use, it also involves a wastage of sorely needed potential food supplies. Any adjustment of livestock production in the interests of better nutrition for more people should be based on differences among species and feeding operations with respect to (a) efficiency of human food production, (b) consumption of foods directly useful to man, and (c) overall nutritive value of the animal product. It is concluded that market milk production should have first priority on feed supplies. Butter production rates the same priority only to the extent that the skim milk is recovered for human use. Egg production should be ranked above pork production, but broiler chicken production deserves very low rating. To the extent that beef cattle and sheep utilize range and other roughage not available to dairy cattle, their production should have high priority rating, except where any large consumption of concentrates is involved. The heavy fattening of meat animals is a very inefficient use of the basic food supply in relation to human needs.

Vitamin B Complex Studies with Diets Differing in the Carbohydrate Component. A study was made of the growth, food consumption, intestinal flora, leucocyte picture, fecal elimination and hepatic storage of folic acid, biotin, pantothenic acid, niacin, and riboflavin of rats receiving highly purified diets containing glucose, sucrose, lactose, dextrin, or cornstarch as the component, with and without the addition of succinylsulfathiazole. The inclusion of this drug in highly purified diets irrespective of the carbohydrate component is effective in producing combined folic acid and biotin deficiency. The intestinal synthesis of folic acid is depressed directly by the administration of succinylsulfathiazole. The feeding of purified diets containing no drug promotes the synthesis of suboptimal amounts of folic acid since prolonged feeding of such diets may result in hepatic stores of folic acid indicative of an incipient deficiency. The type of dietary carbohydrate used is of no significance.

Fat and Food Utilization. A seventy-day metabolism and body analysis experiment was conducted to determine the effects of differences in the fat content of diets, with large increases in the intake of ten of the vitamins, on the utilization of food energy and protein by growing albino rats. A comparison was made between three diets containing 2, 10, and 30 per cent of fat respectively. Determinations were made of gains in live weight, nitrogen, fat, and energy, and of the heat production for seventy days as the energy of the food minus the energy of the excreta and of the body gain. The statistically significant results were body gains of fat and energy, and decrease in heat production, in the order of the increasing fat contents of the diets.

Dental Caries in the Cotton Rat. The ingestion of diets in which starch or dextrin had been substituted for sucrose resulted in a low incidence and extent of dental caries in the cotton rat as compared with those found after ingestion of the control sucrose ration. Diets in which ten parts of lard had been added at the expense of the carbohydrate gave some protection as compared with the low fat sucrose ration. No difference was observed in the effects of glucose, dextri-maltose, or sucrose in these lard rations. With sucrose rations containing ten parts of lard, increasing



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the protein level at the expense of the remaining carbohydrate further reduced caries incidence.

Vitamin Changes During Canning. Studies of vitamin retention were made of nine vegetables and one fruit as produced under commercial canning practices. Ascorbic acid retention was found to be excellent in tomato and tomato juice; good in cherries and carrots; fair in asparagus, corn, spinach; and poor in snap beans, Lima beans, and peas. Carotene retention was excellent in asparagus, cherries, spinach, and tomato; good in carrots, corn, peas, and tomato juice; and fair in snap beans. Thiamine retention was excellent in tomato; good in tomato juice; fair in asparagus and carrots; and poor in snap beans, Lima beans, corn, peas, and spinach. Riboflavin retention was excellent in asparagus, tomato, and tomato juice; fair in Lima beans, corn, peas, and spinach; and poor in snap beans. Niacin retention was excellent in asparagus, spinach, tomato, and tomato juice; fair in carrots and corn; and poor in Lima beans and peas.

Diet and Hydrocephalus in the Rat. Female rats received a synthetic diet to which thirteen vitamins had been added. The vitamin mixture did not contain ascorbic acid or vitamin B_c, and the diet contained no unrecognized vitamins unless they were present as contaminants. Nearly 2 per cent of the offspring developed hydrocephalus. Presumably this abnormality was the result of a nutritional deficiency.

THE LANCET

Vol. 2, October, 1946

*Malted foods for babies. Trials with young rats. H. Chick and E. B. Slack.—p. 601.

Malted Foods for Babies. A malted food as a supplement or substitute for milk for infants was used during the war in Rome. The formula has been tested for proteins and the B vitamins on young growing rats and compared with milk proteins. It was found that the different proteins were equal in growth-promoting value when fed in a diet of equal nitrogen content. It still seems safer, on general grounds, to include a small proportion of milk powder in any infant food.

MILBANK MEMORIAL FUND QUARTERLY

Vol. 24, October, 1946

*Preliminary observations on diurnal and other variations in hemoglobin levels. H. Wilkins and R. Blakely.—p. 359.
*Hemoglobin variations for women on iron therapy for thirty-one months. D. G. Wiehl and H. D. Kruse.—p. 373.
*Food supply and nutrition in the Netherlands and immediately after World War II. M. J. L. Dols and D. J. A. M. van Arcken.—p. 319.

Hemoglobin Levels. This report presents data on the morning and afternoon hemoglobin determinations of 651 adults and children. The work was done on school children and teachers in Florida. The results of morning and afternoon hemoglobin determinations on these individuals showed an appreciable variation during the day, and the majority of individuals tested showed lower levels in the afternoon.

A group of twenty-one college girls were tested several times during the day for hemoglobin values on both venous and capillary blood. The highest values obtained were in the morning for every subject, and the lowest were between 2 and 5 o'clock in the afternoon with the exception of three subjects for whom venous values, but not capillary, were lowest at 8 to 10 p.m. There was a tendency for values to rise in the evening above the afternoon minimum value.

Factors such as excitement, temperature, and the midday meal seemed to have no significant effect on the hemoglobin levels, whereas after exercise the hemoglobin value was higher than before exercise.

Hemoglobin Variations for Women on Iron Therapy. Fourteen white women who had hemoglobin values at an initial examination of from 8.2 to 11.9 gm. and three Negro women who had initial values from 10.0 to 11.9 gm. were given iron for periods of twelve to thirty-one months. A control group of white women who had hemoglobin values ranging from 11.5 to 12.0 gm. at the initial examination were re-examined at the same intervals as the therapy group. The results showed large individual variations from one period to another for both the therapy and non-therapy groups, but as a group, the therapy subjects failed to obtain higher levels than the control subjects. Two possible explanations are offered for this: (a) the influence of non-dietary conditions in the etiology of deficiency states, and (b) that multiple nutrients are necessary for the production of hemoglobin and maintenance of a maximum level.

Food in the Netherlands During the War. In this article an attempt has been made to summarize the course of the Dutch food supply during World War II. Some miscellaneous historical facts have been recorded, as well as occasionally the motives or circumstances that account for the policy pursued.

NEW YORK STATE JOURNAL OF MEDICINE

Vol. 46, October 15, 1946

*Infectious hepatitis. H. M. Murphy.—p. 2281.
*The management of uncomplicated peptic ulcer. J. E. Berk.—p. 2286.

Infectious Hepatitis. This study of infectious hepatitis was based on two years' experience in the Army general hospital in Italy and France. About 3,000 cases of hepatitis were treated during this length of time. It was found that symptoms and physical findings in infectious hepatitis followed a fairly definite general pattern but varied considerably in degree. There was no single liver function test that was really accurate. The use of multiple tests was more rational and offered a better chance of demonstrating abnormalities. Bed rest and a nutritious diet were the most important therapeutic agents. Plasma and whole blood were useful during the severe phase of illness. In the convalescent period the resumption of activity should be gradual.

Management of Uncomplicated Peptic Ulcer. The therapeutic objective in management of peptic ulcer is not only to relieve symptoms but to heal the ulcer and to prevent recurrences. Hospitalization, medications, and dietary principles are discussed. A new therapeutic approach to the problem, the use of enterogastrone, is mentioned since it seems promising. This substance exerts an inhibiting effect on gastric motility and secretion.

NUTRITION REVIEWS

Vol. 4, September, 1946

*Nutrition survey of American troops in the Pacific. W. B. Bean.—p. 257.
*Present knowledge of ascorbic acid (vitamin C) in nutrition.—p. 259.
*Protein requirement of adults.—p. 264.
Peptic ulcers in protein and vitamin A deficiency.—p. 278.
Protein and antibody production.—p. 279.
Essential amino acids in milk proteins.—p. 284.
Folic acid in raw and cooked meats.—p. 286.

Vol. 4, October, 1946

*Nutrition and pediatrics. N. B. Talbot.—p. 289.
*Present knowledge of iron and copper in human nutrition.—p. 291.
*Caloric intakes of a group of Boston children.—p. 298.
*Supplementation of the diet of aircraft workers.—p. 300.
Regeneration of liver protein as a test for dietary protein adequacy.—p. 309.
Pre-exercise nutriment and physical efficiency.—p. 313.

Nutrition Survey of American Troops in the Pacific. It was concluded that the general state of nutrition of troops on various Pacific Islands during the last year of the war was good. Abnormalities were similar to those found in

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troops in the United States. The acceptability of food and skill in preparation were of great importance in nutrition. The Army realized that it was better to have an imperfect ration which was eaten than a theoretically perfect one which was not eaten. The idea of acute tropical deterioration and a special food requirement peculiar to the tropics was dispelled. The data acquired from the group of soldiers can be applied in other theaters of operation.

Present Knowledge of Ascorbic Acid. In structure ascorbic acid closely resembles the monosaccharide sugars. Since it is the only substance in most plant and animal tissues which displays a reducing property in acid solutions, it is a basis for a number of simple analytical methods. The knowledge of the distribution of ascorbic acid in food sources is more complete than that of any other vitamin. Most fresh plant foods contain some ascorbic acid, but despite its wide distribution many parts of the world continue to be in need of ascorbic acid.

It is more subject to loss during storage and processing than any other nutritive essential. In general, the greater the exposure to heat and air the more rapid the loss. The content of fruits and vegetables has been shown to vary tremendously with variety, climate, soil, and maturity.

Tissues and body fluids contain varying amounts of ascorbic acid depending upon the type of tissue or fluid and the recent dietary intake. Considerable controversy exists as to the extent and type of benefits resulting from intakes between the minimal requirement and the intakes recommended by the National Research Council. Ascorbic acid is reportedly effective in a host of clinical conditions such as diabetes, muscular fatigue, hay fever, rheumatic fever, pernicious anemia, arthritis, drug sensitivity, and metal poisoning.

Protein Requirement of Adults. In a study of the protein requirement, twenty-six adults were fed diets devoid of animal protein and low in protein content. Various modifications of this diet were used for the different studies. It was found that there was a great difference in subjects in the time required for stabilization of the diet. Great care was taken to secure the complete cooperation of the adult.

There was no change in the nutritional value of the diet through the addition of soy beans or more bread, but meat and wheat germ caused an improvement in biologic value. Certain "high quality" proteins are more efficient than others, but less efficient proteins may serve equally well if enough can be fed to cover the requirement, considering the specific digestibility and biologic value. There were no measurable objective changes in the physical condition of the individuals. The total protein, plasma albumin, and plasma globulin tended to decrease on a low, protein-all-vegetable diet. Changes in the hemoglobin, hematocrit, or plasma volume, were slight.

The authors concluded that the recommended allowance of 70 gm. of protein for an adult weighing 70 kg. is most generous and could be reduced to 50 gm. and still provide a margin approximately 30 per cent above requirement.

Nutrition and Pediatrics. Proper nutrition is well known to be one of the major factors in the health, growth, and maturation of infants and children. The N.R.C. recommended daily allowances of protein and minerals provide an ample margin of safety. Scattered pieces of evidence, however, indicate that the organism may be able to adapt to a limited intake by increased efficiency of absorption and utilization. Therefore, much smaller amounts of protein, minerals, and vitamins may suffice in the maintenance of good health. The absolute requirements would be of practical value in a partially starving world where every nutrient counts. The utilization of protein is indirectly influenced by the total caloric intake and by certain hormones. Hormones occupy a position of almost equal importance to the diet in the determination of body protoplasmic changes. More detailed information concerning the absolute minimal requirements of the essential nutrients will aid in defining exactly the role of nutrition in pediatrics.

Present Knowledge of Iron and Copper in Human Nutrition. Approximately three fourths of the 3 to 5 gm. of iron contained in the adult human body is concerned in hematopoiesis or blood formation. Extremely little iron is excreted in the urine. Therefore, it would seem that the need for external sources of iron is present only or largely when blood is lost through hemorrhage, or when growth or reproduction demands exceed the capacity of the iron stores within the body. The requirements of females are possibly four or more times as great as those of males. Eggs, molasses, liver, beef muscle, and dried fruits are good food sources of iron. While ferrous iron is more readily absorbed by man than ferric iron, other conditions in the gastrointestinal tract also influence the absorption of iron. Probably the iron content of the blood plasma represents the iron balance in the human body. Iron deficiency in man is recognized generally by the presence of hypochromic anemia. The role of copper in human nutrition is still obscure. Copper deficiencies are rare, and several studies have failed to actually indicate its need.

Caloric Intakes of a Group of Boston Children. Dietary standards alone do not measure or determine the adequacy of caloric intake. A fifteen-year study was done at six-month intervals on the caloric intake of 324 children ages one through ten years. The estimated mean caloric consumption increased with remarkable regularity by 100 to 200 calories per year for both girls and boys from one year of age to nine years. Estimated intake rose from 1224 calories at one year for both sexes to 2328 calories for boys and 2096 calories for girls at ten years. However, these means are somewhat higher than most of the estimates of intake of similar groups recorded by other investigators. Because of these variations, it is well to regard the results of dietary records merely as of relative value.

Supplementation of the Diet of Aircraft Workers. Three groups of workers were chosen for the experiment: one to which a predetermined vitamin supplement was given; a second was administered a placebo; and a third acted as a control. The report compares the laboratory and clinical findings of the groups at the end of one year of supplementation as well as each group before and after the year in question. It was concluded that although these aircraft workers had dietaries which did not approach the ideal as usually depicted, no impressive benefits would be derived from routine provision of large vitamin supplements to industrial workers whose food habits are comparable to these.

REVISTA DE LA ASOCIACION ARGENTINA DE DIETOLOGIA

Vol. 4, April, May, June, 1946

*The protein value of human milk. P. Escudero.—p. 82.
*The excretion of lipids in the obese, studied with normal and lipid-free diets. J. E. Solá and G. Waisman.—p. 94.
*Methods of preparing liver. Standardization of recipes. B. Rothman and H. E. Diaz.—p. 107.
*Contribution to the study of human milk. Calculation of total non-protein nitrogen. G. Waisman and I. P. Giménez.—p. 120.
*Microbiological study of a change in olives preserved in brine. S. Soriano and A. M. de Soriano.—p. 132.

Human Milk Protein. The National Institute of Nutrition has carried on extensive research on human milk. This paper reports a study of the protein value. Forty-eight samples of mothers' milk were examined. These were provided by normal healthy donors whose diets were carefully supervised. Each sample consisted of a mixture

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of milk from twenty-five to thirty mothers. The figures represent the average of more than 1200 individual expressions. Total nitrogen averaged 1.748 gm. per liter of milk. Of the samples studied, 87.5 per cent had a nitrogen total of between 1.60 and 1.90 gm. per liter. Total non-protein nitrogen, 0.314 gm. per liter; total protein nitrogen, 1.434 gm. per liter. Multiplying by 6.41 (factor established at the biochemical laboratory of the National Institute of Nutrition) human milk contains 9.19 gm. of protein per liter.

Lipid Excretion. In a previous experiment one of the authors found that the excretion of lipids in the feces is independent of the diet and that each factor concerned in the formation of total lipids of the feces is characteristic, whether the diet be normal or lipid-free. It is to be concluded that the lipids excreted in the feces are of endogenous origin. Six obese subjects were studied. They were given first a normal diet, then a lipid-free diet. The quantity of lipids excreted on both diets was greater than in the case of normal subjects. The excretion of the total fatty acids, free and combined as soaps, and of the lipids in the form of neutral fats, including phospholipids, was characteristic in each case on both diets, and was similar to normal subjects under the same conditions. Lipemia, in the cases studied, was normal. No relation was established between lipemia and lipid excretion in the feces.

Liver Preparation. The authors have collected fifty-seven different recipes for serving liver. Original sources of recipes were French and South American cook books. Testing was done at the National School of Dietitians. The recipes are grouped according to whether the liver is oven-cooked, fried, or combined with other foods as in soups and casseroles. An example of the latter group is this liver loaf:

Liver as a Cold Cut

Beef, lamb, pork, or chicken liver may be used

500 gm. liver	30 gm. onion
30 gm. oil	100 gm. sausage

Bread crumbs, salt, pepper, soup stock, 2 eggs, separated

Cut onion fine and brown in oil. Add finely chopped liver, sausage without skin, and bread crumbs soaked in stock. Season and mix in the well beaten egg yolks. Fold in whites beaten stiff. Place in buttered pan, sprinkle with bread crumbs, and bake in moderate oven. Cool and unmold. Serves five.

Human Milk. In making tests for total protein in milk, errors of up to 28 per cent are possible if the non-protein nitrogen is not taken into account. The non-protein nitrogen may be approximately calculated by the nitrogen released through the action of sodium hypobromite on a protein-free filtrate. Sodium hydroxide and zinc sulphate are used in a simple method of removing proteins. The total proteins of human milk calculated from the protein nitrogen may vary from 8 to 9 per cent with respect to the real value if the protein nitrogen is deduced from the difference between the total nitrogen and the non-protein nitrogen found by the sodium hypobromite method.

Olives. Olives gathered before maturity are immersed for a time in a solution of sodium hydroxide, and then thoroughly washed. Ripe olives are exposed to the air between two washings with soda. When the soda has been eliminated, the olives are placed in a 9 per cent brine solution and are permitted to ferment. The Greek method of preparation consists of mixing with the olives coarse salt equal to one fourth of their weight, and then covering them with a layer of salt. In Italy the olives are immersed in boiling salted water, drained for several hours, and then dried in an oven at no more than 80°C. In the method used in California (U.S.A.) and Argentina, a weak brine solution (3 per cent) is used. The bottled olives are then sterilized at 115°C. for 40 min. The success of fermentation depends on the formation of lactic acid which, with the salt, serves to preserve the product by preventing the development of harmful bacteria. This is called the "cure" of the olives. The presence of alien organisms interferes with the establishment of a good lactic acid fermentation, thus preventing preservation. In one type of spoilage, the olives float on the top of the liquid. The specific organism responsible for this has not hitherto been identified.

The olives studied in the present experiment were bottled in about 6 per cent brine. Texture and general appearance were normal, but there was a strong odor of hydrogen sulphide. A varied and abundant microflora was found under the microscope. None of the active proteolytic microorganisms appeared in sufficient quantity to be the cause of the spoilage. It was recalled that a certain curious and rare vibrion under absolutely anaerobic conditions reduces sulphates to sulphides, completely eliminating the oxygen. Since vibrions had been observed in the olives, it was decided to investigate along this line. *V. desulfuricans* (*Spirillum*) proved to be the cause of the spoilage. The source of the organism could be water, salt, or earth, contrary to the belief of manufacturers who have blamed the barrels in which olives were cured. The presence of this bacterium is a relatively serious economic problem, since it causes losses sometimes amounting to more than a quarter of the annual production of olives.

THE SOUTHERN MEDICAL JOURNAL

Vol. 39, October, 1946

*Effect of vitamin A administration upon defective color vision. J. A. Richardson and F. W. Kinard.—p. 811.

Vitamin A and Color Vision. Of twelve color blind subjects receiving daily dosages of 50,000 units of vitamin A, four showed no improvement, and eight slight improvement. The slight improvement found would be of little practical importance. It appears definite that vitamin A administration cannot be expected to cause improvement in the condition of color blindness (using pseudo-isochromatic plates as the criterion for color blindness) when daily dosages of 50,000 units are administered for four to eight weeks.

BAKERS' HELPER

Vol. 86, September 21, 1946

What is $\frac{1}{20}$ of 1%?—p. 35.
AIB reports on public relations.—p. 37.
Late Washington news. L. Sullivan.—p. 39.
*Equipped for efficiency.—p. 41.
*Insect control in the bakery. E. L. Holmes.—p. 42.
October selling opportunities. A. McGuire.—p. 102.
*Know your ingredients. F. P. Graw.—p. 106.

Equipment. Features of a new bakery in Salt Lake City, incorporating the latest in design and equipment are described. Glass block windows take the glare off the walls and throw it on the ceiling, causing less eyestrain for the workmen. Wall guards are used to prevent scuffing and scarring of walls. Switch boxes are numbered, with a corresponding number on the machines so the operator will know at once the correct fuse for each machine. An overhead electric door into the dough room disturbs neither the humidity nor the temperature of the fermentation room. An oven skirt comes down some 5 ft. from the ceiling sur-

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rounding the oven. Above is an exhaust fan which sends the heat outside during the summer or turns it back into the room in winter. Moving of racks is facilitated by a track system wherever possible. The pan washing center is situated to insure a comfortable temperature for work.

Insect Control. The first step in insect control is to take measures to keep out all insect life. This may be done with screens or, in case of loading ports, with "wind screens." Breeding places in the immediate neighborhood should be sought and destroyed. All incoming raw materials such as flour, dried fruit, and spices should be thoroughly inspected for insect infestation. Bad shipments should be refused. If there is already infestation in the plant it may be dealt with in four ways: fumigation, space spraying, residual spraying, or baiting or poisoning. Space spraying is done with a spray gun. This is resorted to if insects are visible, as the killing action is in the little droplets that land in the air and evaporate quickly. Residual spraying consists of spraying resting places of insects with a lasting spray so that the insects will pick up the poisonous substance on their bodies. Fumigation is done only occasionally. It should be done by specially trained personnel. Spot fumigation means fumigation of only certain machinery.

Flour is generally understood to mean white flour or wheat flour with all other grades and types designated by their proper names. Classes of wheat from which flour is made are hard red spring, durum, red durum, hard red winter, soft red winter, white, and mixed. The wheat berry consists of three parts: bran, germ, and endosperm. The white flour, 72 to 74 per cent of the wheat, is called a straight or 100 per cent flour. If any portion of lower quality flour is removed, the remainder is called a patent, the part removed is second clear or low grade. Another separated portion may be first clear or fancy clear. Short patents are favored for fine bread making, first clear is used in making rye bread. Standard patents, from which less of the clear has been removed, is probably the most used of all patent flours. Soft wheat flours are used in cake and pastry baking. Whole wheat, entire wheat, and Graham flours are the entire wheat berry ground into flour. It is more likely to become rancid because of the oil in the germ. Rye requires the addition of white flour to make a light loaf. Bromating is the process of introducing into the flour a very minute amount of potassium bromate. This adds tolerance to the dough by conditioning the gluten and acts as a nutrient for the yeast.

FOOD INDUSTRIES

Vol. 18, October, 1946

*How to get a job. A. Stone.—p. 71.
New devices improve cleaning and effect economies. J. R. Perry.—p. 74
Non-enzymatic browning.—p. 79.
*Frozen foods defrosted by electronic heat. W. H. Cathcart.—p. 80.
Development of food products in wartime Germany. C. T. Carlin.—p. 82.
Fish filleting machine cuts all commercial sizes. J. F. Ziemba.—p. 86.
*Foil package extends merchantable life of peas. C. A. Sumner.—p. 94
New plastic covering protects idle equipment. A. V. Gemmell.—p. 96.
The freezer locker plant is going commercial. H. Carlton.—p. 98.
*Australia's agar industry. A. Makaroff.—p. 101.
Better lighting: better work. J. S. Walsh.—p. 104.

How to Get a Job. Job hunting involves the process of selling yourself, your skill, experience, and training. To achieve your objective certain steps must be taken. These are: preparation, actual search, and clinching the job. Preparation consists of a full, fair, and accurate self-examination to discover your strong and weak points. To get these points more clearly in mind put them down on a piece of paper under the suggested headings of background, training, experience, main field, and minor fields. Next, determine by careful study the best market in which to sell yourself. Market information should include facts about companies in your field and related fields that may be interested in someone with your skill and training. Now that you are ready to look for a job you have four choices open to you: (a) you can work through a regular employment agency; (b) you can advertise; (c) you can answer advertisements; and (d) you can contact, preferably by letters, those companies that your study and information lead you to believe are likely to be interested in your experience and abilities. Consider the advantages and disadvantages of each of these choices before using them. Following your initial search, if you are granted an interview, use all your skills and techniques in selling yourself. Your time is short so be alert and use it well. Remember the obvious fundamentals of an interview, such as good grooming, correct speech, and proper manners. Don't forget to write a letter to your interviewer thanking him for his time and consideration.

Frozen Foods Defrosted by Electronic Heat. The dielectric form of electronic heat is used to heat non-conductors or dielectric materials, such as plastics and foods. Dielectric heat has the ability to heat each interior particle of a material so that heating is uniform throughout. Because of its expense, this method of heating should be used only to accomplish results otherwise unattainable, as in defrosting frozen food products. Frozen eggs may be defrosted in a few minutes without change in consistency or notable increase in bacterial count. This method has the advantage of decreasing loss due to spoilage and increasing the flexibility of cake production in a bakery. Frozen whole eggs are the most difficult to defrost and defrosting must be slower than for frozen fruits. Containers which will not heat in the high frequency field must be developed to prevent cooking of the frozen mass if defrosted in container. Foods take longer to defrost when left in the container than when removed. Frozen eggs must be used soon after thawing to prevent contamination. Fruit covered with sirup defrosts more rapidly than that without. In most cases it is more practical to use dielectric heat only in breaking down the product into smaller pieces, rather than attempting to remove all ice from it, or to raise the temperature of the defrosted mass.

Foil Package for Peas. Approximately 20 to 30 per cent of all vegetables produced by farmers are wasted before reaching the consumer. About 25 per cent or more of this waste could be prevented by efficient prepacking at the point of harvest and improving conditions of transportation and storage. Although a large increase in production of frozen foods is expected, at present only 1 per cent of the total U. S. consumption is quick frozen produce, while fresh produce represents about 85 per cent. Aluminum foil containers and suitable storage temperatures reduce moisture and weight losses to a minimum. In addition, the peas thus packaged retain more sugar, develop less starch, are tender, and less mature than those packed in cardboard. Other factors resulting in better quality peas are: (a) air exclusion, (b) modified atmosphere within the package, (c) protection against light, (d) heat insulation, and (e) any changes in the nutritional value of peas.

Australia's Agar Industry. Australia, America, and New Zealand were the only countries to develop an agar industry during the war. Previous to that Japan had a world export monopoly in the industry, selling agar for from $1200 to $2100 a ton. The present price is $5200 a ton, but modern methods can substantially reduce this figure. In spite of the relatively simple process, agar manufacture is costly. The cost of powdered agar is considerably more than that of strip or flade agar. Australian agar appears to have a greater gel strength at higher concentrations and be less at lower concentrations than Japanese agar. The gel is more transparent and syneresis seems

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relatively greater. In addition to being a bacteriological media, Australian agar is suitable for dairy and confectionery products and is an excellent gel in canned meats.

Better Lighting: Better Work. An abundance of light does not always indicate good lighting. There are three main requirements for proper illumination: (a) enough light for all visual tasks, (b) the absence of glare, and (c) proper distribution and diffusion of light and color quality. A foot-candle meter is one aid in checking the amount of light in any given place. One foot-candle is the illumination produced at a point on a wall opposite and 1 ft. from a candle flame. Increasingly difficult seeing tasks require more foot-candles of light. Usually daylight alone is insufficient and unsatisfactory for interior work. Artificial light will remain constant at all times, but can be varied according to needs. Light contrast between the work area and the surroundings should be reduced as much as possible to avoid constant and difficult eye adjustments. Proper lighting makes for easier housekeeping and sanitation. Speed of vision, important in preventing accidents, is increased with increased light. Recommended light intensities are given for various tasks.

HORWATH HOTEL ACCOUNTANT

Vol. 26, August, 1946

The trend of business in hotels.—p. 3.
*Banquets and parties come back. G. K. Dyskant.—p. 5.

Vol. 26, September, 1946

*Sales go up but profits come down.—p. 7.

Banquets Again. Although food and beverage sales have increased 20 per cent in 1946 as compared to 5 per cent in 1945, the increase has seemed less marked in 1946 mainly because of the return of banquets and party service. There has only been a slight increase in dining room sales. However, banquets and room service are back and are doing much to increase food and beverage sales.

HOTEL MANAGEMENT

Vol. 30, October, 1946

*Cutting payroll costs by means of modern wage control. C. N. Kaufman.—p. 44.

Job Evaluation. The impetus of rising labor costs and personnel problems has caused increased interest in job evaluation programs by managers. Job evaluation consists of two steps—job rating and man rating. Successful job evaluations help the manager to establish better labor relations, to hold down labor costs by placing a price on each job, to avoid indiscriminate raises, and, hence, to render better service to the guests. These programs are carried out by experienced management firms or more desirably by executives and employees familiar with the establishment, aided by outside experts. The benefits derived from these programs vary with the concern and the correct and exact execution by the committees. The greatest benefit is in reduced payroll costs, thus helping managers consolidate their wartime gains for postwar operation.

THE HOTEL MONTHLY

Vol. 54, September, 1946

Organizing your hotel for accident prevention.—p. 46.
*What will be the future relation of the hotel to its employees? R. W. Stone.—p. 50.
*French cooking for Americans.—p. 52.
*A cloverleaf roll former.—p. 52.
*Roast and brew coffee in nine minutes via electronics.—p. 52.
Food kept hot for serving for three hours.—p. 52.
How to put your hotel's best foot forward.—p. 58.
*Pre-apprenticeship program for food workers successful in Detroit.—p. 66.

French Cooking for Americans. Louis Diat, chef of the Ritz-Carlton, New York City, has published a new recipe book entitled *Home Cook Book*. It contains some 600 recipes which are typical of French home cooking and the French countryside.

A Cloverleaf Roll Former. Instead of making thirty-six individual dough balls, it is possible to make only twelve balls which, when partially proofed, are equally segmented into cloverleaf rolls. A single, simple, fast operation will completely shape three rolls. This is done by a lightweight roll former made of stainless steel with hand rubbed, hard maple handle, easily kept spotlessly clean.

Roast and Brew Coffee in Nine Minutes via Electronics. The new method requires only nine minutes to change coffee from a green bean to a finished brew. Advantages of the electronic roaster are: fresh roasting and quick roasting, both of which enhance coffee flavor.

Pre-Apprenticeship Program for Food Workers Successful in Detroit. In the opinion of chef Herman A. Breithaupt of the Munger Trade School, Detroit, we in America must now train all our own chefs, bakers, cooks, and all other food workers. As a result of the lack of such trained foods personnel, the Detroit Commercial Foods School was founded in 1939. At first only boys of fourteen with a grade school education were admitted, but later the scope was broadened to include girls. The average entering boy has completed the tenth grade and is interested in further education only in a practical way. Hence, the school offers part-time work in the fundamental divisions of cooking and classroom instruction in the necessary theoretical counterparts. Through wide practical experiences the program covers all culinary and managerial operations. Gradually, the entrance requirement standards are being raised. At present scholastic credit is given for the two-year course. Following the pre-apprenticeship program, the student is ready to begin the regular two- to three-year apprenticeship, after which he becomes a journeyman cook. More thorough training programs such as this will help considerably to reduce the present labor turnover.

PERSONNEL JOURNAL

Vol. 25, November, 1946

*Advice, guidance and counseling. W. G. Shepherd.—p. 167.
Statistics on the grill. H. G. Heneman, Jr.—p. 171.
*Salaried employees—a case study. R. B. Eckels.—p. 178.

Advice, Guidance, and Counseling. This is a discussion of the differences, the relative values and vices of the advice, guidance, and counseling techniques as used in industrial personnel work. Employees' problems can be solved by intelligent personnel work, but advice merely tells the worker the policies of the company and does not find the reasons for dissatisfaction. It is the easiest, most popular, and least effective method. Guidance is an improvement over advice. Here the personnel person lets the employee tell his story, and either by guess work or intuition determines where the trouble lies. Then he outlines several ways to solve the problem and the employee makes the decision as to which course he will follow. Counseling takes time and training, but it solves the problem. The counselor listens, considers, and asks questions which help the employee to see his real problem and thereupon become able to solve it to a considerable extent.

Salaried Employees. A case study of approximately 1000 employees of an Indianapolis firm was made to discover what the postwar salaried workers expect from management. It was found that the routine clerical worker demands a pay scale that shall be better adjusted to living costs. This group together with the engineers and other highly trained workers want to see the management conduct periodic job surveys in order to account for changing job requirements and therefore new pay scales. War training

Thus a Potential Loss Becomes Man's Gain

Only a few of the many grains and grasses produced so abundantly in our fields are edible for man. By far the majority can be eaten only by herbivorous animals whose peculiarly organized digestive system is able to extract the nutrients contained in these plants. For man, unable to digest them and extract their nutrients, these grasses and grains in their original state would be a total loss.

Meat-producing domestic animals convert this potential loss to man's gain. Cattle, sheep, and hogs—feeding largely on these plants—convert them into man's preferred protein food: meat. Few of us realize that for cattle it takes fully twenty-five pounds of such feed stuffs—grasses and silage—to produce a single pound of meat.

Thus, through our domestic animals' ability to thrive on these plants which are inedible for man, what otherwise would be a gigantic waste, is changed into man's most appreciated food.

The Seal of Acceptance denotes that the nutritional statements made in this advertisement are acceptable to the Council on Foods and Nutrition of the American Medical Association.

ACCEPTED AMERICAN MEDICAL ASSN Council on Foods and Nutrition

AMERICAN MEAT INSTITUTE

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programs should be continued by management for the mutual interest of both the employer and worker. These programs have given the workers an understanding of their job and new paths for advancement in related fields, also a new interest in the job that management was trying to do. The salaried workers showed greatest concern over their demands for better ways to make their wishes known to management. It is felt that more frequent interviews, better relations with the personnel department, more job analyses, and a satisfactory method for airing grievances without danger of prejudice to the individual would be conducive to better industrial personnel relationships. The salaried personnel were not in favor, generally, of an office workers' union.

WHAT'S NEW IN HOME ECONOMICS

Vol. 11, October, 1946

Careers in home economics. I. S. Willson.—p. 18.
*World freedom from hunger. M. W. Farrell.—p. 42.
Educating consumers for twentieth century America. F. T. Wilhelms.—p. 44.
The new home economics teacher. M. J. Fiat.—p. 48.
*Nutrition and individual welfare. D. E. Shank.—p. 49.
A food demonstration to show how. D. E. Shank.—p. 50.
Which gives the consumer the best value—chains or independents? C. Dipman.—p. 56.
*Nutrition of infants. L. S. Coover.—p. 68.
Tools for audio-visual teaching. R. A. Mosser.—p. 78.
*The prevention of employee accidents. W. Pendergast and R. LeAnderson—p. 110.
*Measurement of taste sensitivity. E. A. Wood.—p. 174.
*A community project in nutrition education. K. A. Tucker.—p. 194.

Goal of FAO. The Food and Agriculture Organization of the United Nations is a group of forty-two countries working collectively to secure freedom from hunger and a higher standard of living for their people. Although it is not a relief organization, its immediate concern is to prevent starvation and alleviate suffering. The long range objective, more efficient living, is being planned scientifically and internationally for greater distribution and benefits to the producer and consumer alike. Roads and reservoirs will be built in less advanced nations so there will not be a glut in one area and starvation in another. FAO has no financial power of its own but makes recommendations to other organizations of the UN which do have. Sir John Orr, an outstanding Scottish nutritionist, was the unanimous choice for Director General of FAO.

Rehabilitation of the Starving. An experiment on controlled starvation conducted at the University of Minnesota under the direction of Dr. Ancel Keys is described. Thirty-four healthy conscientious objectors served as human guinea pigs. During the experiment 280 characteristics were studied in detail, including body measurements, blood pressure, intelligence, rate of fatigue. First the subjects lived a normal life for three months on 3160 calories. Then the diet was reduced to 1755 calories for six months. Results: 25 per cent body weight was lost; 40 per cent body tissue disappeared; edema caused painful swelling; the heart shrank; basal metabolism, rate of breathing, pulse, blood pressure, and body temperature were all reduced. Interest was lost in everything except the next meal. No one gained more than 2 lb. in six weeks during the period the caloric intake was increased from 2000 to 3200. During the last six weeks, the caloric levels were raised to 2800 and 4000. At the end of this period it was estimated that the men were only 25 per cent rehabilitated. It was estimated that a high-caloric diet for six months to a year is necessary for substantial recovery. Benefits from extra protein and vitamins failed to come up to expectations.

Infant Nutrition. A baby's rate of growth is more rapid during the first year of his life than in any other similar length of time. While a tripled birth weight at the end of the year is satisfactory, many babies today gain more. Since the infant needs food to grow as well as for energy, he eats more in proportion to his weight than does the adult. Of first concern is the caloric need. This is obtained mainly through milk formulas. Sugar added is adjusted by the doctor. Milk formulas also contain all protein, fat, calcium, and riboflavin. The first two supplements, added during the second and third weeks, are cod liver oil and orange juice. They supply vitamin D and ascorbic acid respectively. Next the baby is offered cereal to furnish iron and thiamine. At first this is given mixed with a large amount of milk to aid in swallowing. Gradually the milk is cut down until the baby is able to handle the more solid food. The next supplements to the diet are strained vegetables and fruits. Hard cooked egg yolk and well cooked toast are then given, the latter added so the baby can hold it in his hand. At six months simple desserts are introduced—custards or junket, first plain then with pieces of orange or banana. By the end of the first year the infant is eating a well-rounded diet, extremely simple and yet not unlike that of his parents.

Preventing Accidents. Accidents in the school lunchroom increase costs, waste time, decrease injured worker's productivity, and many times put equipment temporarily out of order. Thus for business as well as humane reasons accidents should be avoided. Six rules are given for good safety organization: (a) management must show an active interest in a safety program; (b) regular safety inspections should be held; (c) short safety meetings are desirable; (d) first aid materials should be provided; (e) a record of accidents should be kept; (f) there should be an emergency plan in case of serious accidents. Specific suggestions are given as to how management can make plant and equipment safer and employees can be taught more careful ways of doing jobs and so cut down accidents.

Taste Sensitivity. Measuring taste sensitivity is being done experimentally in colleges as part of the educational program leading to high food standards. Two tests are used. The threshold test determines whether a person has a keen sense of taste or is relatively "taste blind." Fifteen solutions, of the four primary tastes are prepared, each of the fifteen varying in concentration from the next in line only slightly. Starting with the weakest solution, each is tried until the student correctly identifies which taste it is. The arrangement test is given with the same fifteen solutions shuffled and the student is asked to arrange them in order of their concentration. Before giving either test it should be certain that the student knows the four primary tastes—sweet, salt, sour, and bitter. Many people confuse the last two. Sucrose, sodium chloride, lactic acid, and quinine sulphate are the chemically pure substances used.

Nutrition Education. Better Breakfast Week as conducted in Topeka, Kansas, is a step forward in nutrition education. Data were secured by making a school survey. Questions concerning breakfast habits, foods generally eaten, and reasons for not eating breakfast were asked. Only 49 per cent had fruit, 60 per cent had cereal, and 73 per cent had milk; 7.7 per cent did not eat any breakfast. "Not hungry" and "Do not have time" were the most popular reasons for not eating at all. In the schools every class shared in the project. Art classes made posters; original slogans and plays were written in English class; and amounts were figured in arithmetic classes. Complete breakfasts were prepared and served, the children being allowed to help. The program went outside the school in the form of pamphlets, and radio and newspaper advertising. Many parents who started eating breakfast with their children during this week found they felt much better and continued the practice.

The problem of feeding patients on special diets has often been met successfully by the use of Gerber's Strained and Chopped Foods and Gerber's Cereals. Served straight or made up into soups, salads, souffles, milk drinks or desserts, they provide appetite appeal while meeting the special conditions of the diet.

The 18 kinds of Strained Foods are made from choice raw materials processed to retain high amounts of minerals and vitamins. Their uniform, smooth texture makes for easy digestion. There are 13 Gerber's Chopped Foods. They come in small-size particles and are suitable for patients on a bland diet in which some fibre can be tolerated.

Gerber's Cereals—Cereal Food, Strained Oatmeal and Barley Cereal—are rich in both added iron and B complex vitamins often needed in large amounts by special diet patients. They are pre-cooked and ready-to-serve. They mix to a creamy smoothness for easy digestion.

Gerber's Foods are available at drug or grocery stores at very moderate cost.

Send for Free recipe book, "Special Diet Recipes," containing over 50 colorful, tasty recipes. Address Gerber Products Company, Dept. 231-7, Fremont, Michigan. Additional copies mailed without charge.

Gerber's

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CEREALS • STRAINED FOODS
CHOPPED FOODS

News Notes

Awards. Mead Johnson and Company is the donor of an award to be given to the laboratory or clinical research worker in the U. S. or Canada who, in the opinion of the Committee of Judges of the American Institute of Nutrition, published the most meritorious scientific report dealing with the field of the B-complex vitamins in 1946. The prize may be divided among two or more persons or may cover a longer period than one year, should the judges recommend such action.

The Borden Award in Nutrition will be made in recognition of distinctive research by workers in the U. S. or Canada which emphasizes the nutritive significance of the components of milk or of dairy products. The American Institute of Nutrition will also select the recipient of this award. Nominations will be accepted until January 15 for both awards, which will be presented at the annual meeting of the Institute in Chicago, May 18–22, 1947.

Nutrition Foundation Annual Meeting. The fifth annual meeting of the Board of Trustees of the Nutrition Foundation was held on November 14 in New York. Following the summarization of recent important advances made in the knowledge of nutrition, several new grants were authorized. These were made to the following institutions: University of Illinois for work on amino acids; the University of Minnesota for detailed study on vitamin E; Western Reserve University, the relationships between vitamins and hormones; A. and M. College of Texas, amino acids; George Washington University, oxidation products of vitamin C; Yale University, bacteria and molds; Syracuse University, function of certain B-complex vitamins; and University of Rochester, vitamin A deficiency in rats.

Nutrition in a Hungry World was the title of a recent broadcast by the University of Chicago Round Table. Participants in the discussion were Dr. Paul R. Cannon, Dr. Charles G. King, and Dr. John B. Youmans. The need for more adequate education in nutrition as well as more basic research was stressed.

Future of Enriched Flour. Americans got more iron and B vitamins in their food during the recent war years than at any previous time in the last thirty-seven years. Enrichment of white bread and flour was credited by the Bureau of Human Nutrition and Home Economics with playing an important part in this nutritional gain. Although the wartime law requiring enrichment of white flour sold for family use is no longer effective, about three fourths of the nation's production is enriched voluntarily or to comply with state laws. Nineteen states, Puerto Rico, and Hawaii have passed laws providing for enrichment of white bread and white flour sold within their borders. Consumers in the rest of the country will now need to read labels carefully to be sure that the white bread and flour they buy are meeting enrichment standards.

Apples. The nation's apple crop, estimated at about 117 million bu., was about 70 per cent more than the relatively small 1945 production. Although apples are grown in every state except Florida, the state of Washington furnished more than one third of the entire U. S. production.

USDA Final Export Report for 1945–46. Robert H. Shields, administrator, Production and Marketing Administration, reports that from July 1, 1945 to June 30, 1946, the U. S. exported more than 17 million long tons of foodstuffs. This is more than twice as much as during the calendar year of 1944. UNRRA received the largest amount—3,796,000 long tons. These total food exports were sufficient to provide 250 million persons with 500 calories per day for a period of twelve months. In countries where average consumption was below 2200 calories, this addition to the total diet was of vital importance.

Farm Production Goals for 1947. Secretary of Agriculture Clinton P. Anderson has called for another year of top farm output before reverting to peacetime production levels. The 1947 goal is about 3 per cent more than the 1946 acreage, or 358.5 million acres. Farmers have been asked especially to increase production of such world-scarce commodities as fats and oils and sugar. Factors which are stimulating food demands in importing countries are: low food stocks; a desire to increase rations which have been too low to maintain physical strength; high purchasing power in many countries causing a demand for better diets; and a 7 per cent increase in the population during the war years.

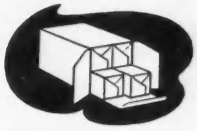
Quartermaster Corps Food Acceptability Program. A new program, under the direction of Dr. W. Franklin Dove, is a step toward the goal of making foods more acceptable to soldiers. Carefully chosen taste testers determine the differences in taste, odor, and texture of particular items of food. Carefully controlled environment is maintained to insure accurate and unbiased tasting. Some foods are tested under colored lights so that the color factor in palatability is eliminated; air conditioning rules out the odor factor in other tests; and still other tests are conducted with the tasters blindfolded.

New Technical Director for Army Medical Nutrition Laboratory. The Army has announced that Dr. Robert E. Johnson will succeed Dr. George N. Berryman as technical director of the Army Medical Nutrition Laboratory, Chicago.

Army Course in Preventive Medicine. Announcement has been made by Colonel Rufus L. Holt, commandant of the Medical Department Professional Service Schools, of the opening of a new course in elementary preventive medicine at Walter Reed General Hospital. Its purpose is to provide preventive medicine officers for the immediate needs of the Army. The five weeks' course will consist of lectures, field and laboratory work. Instruction on sanitary aspects of food and nutrition will be included.

Recruiting Home Economists. The entire October issue of Martha Logan's *Food News and Views*, issued by Swift and Company, is devoted to recruiting home economists. Various fields of interest, such as research, photography, radio work, and writing are discussed, and pictures of the home economist at work illustrate the various positions. The need for scientific training of more young women in the field is stressed.

Buying Butter in Self Service Stores



In thousands of stores, the homemaker must now make her selections entirely "on her own"—without the help of the storekeeper in obtaining good quality.

That is why, in buying butter, more and more well-informed homemakers are looking for brands in paraffined cartons. These homemakers know that unlike other foods, butter cannot be judged as to quality by its appearance . . . and that the best butter is packaged in paraffined cartons.

The paraffined carton is the identification of the manufacturer or distributor, by which the homemaker chooses the brand of butter she likes, with the assurance of guaranteed, uniform quality in every purchase.

Why the Best Butter is Packaged in Paraffined Cartons—

1. Preserves quality and flavor.
2. Keeps out undesirable odors.
3. Protects perishable body and texture.
4. Gives better sanitary protection and prevents crushing.
5. Reduces moisture loss.
6. Convenience in handling.
7. Guards against rancidity.
8. Provides brand identification and assurance of quality.

Paraffined Cartons are also used in packaging Ice Cream, Margarine, Lard, Shortening, and Frozen Foods

PARAFFINED CARTON RESEARCH COUNCIL
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THE BEST BUTTER IS PACKAGED IN *Paraffined* CARTONS

"Eat a Good Breakfast" Campaign. A report of the Greenwich, Connecticut, community program for better breakfasts held in February, 1946, was published in October by the Cereal Institute. The program was sponsored by the Greenwich Nutrition Committee and the Greenwich Tuberculosis and Health Association. The entire community responded to make the program extremely successful. Local agencies, schools, civic groups, social clubs, national organizations, industrial groups, and newspapers all participated. The report includes exhibits of various promotional pieces used in the campaign.

Student Dietitians. Nine students completed training in July and September at the *St. Luke's Hospital, Cleveland*. They are: Arlena Franley, Western Reserve University, now at University Hospitals, Cleveland; Evelyn Allinger, University of California, now at University of California Hospital, San Francisco; Christine Johnson, Florida State College for Women, now at City Hospital, Cleveland; Jane Sheldon, Ohio University, now at Lutheran Hospital, Cleveland; Elizabeth Fidler, Iowa State College, now at Allegheny Hospital, Pittsburgh; Frances Nulton, Stout Institute, remained at St. Luke's; Iris Olsen, now Mrs. William McCleary, Michigan State College, and dietitian at Baldwin-Wallace College Women's Dormitory. Mrs. Marguerite Van Etten, University of Oklahoma, plans soon to join her husband in Hawaii. Five new students began their training in July.

At the *Medical College, Richmond, Virginia*, eleven new student dietitians began training in September.

New Diet Manual. Memorial Hospital, Houston, Texas, has recently issued a new *Diet Manual* which includes sections on diets for children, weighed diets, diets for specific disorders, abbreviation tables, and a bibliography.

Herald Tribune Annual Forum. The New York Herald Tribune annual forum on current problems was held October 28–30 at the Waldorf-Astoria, New York City. The subject of this year's meeting, "The Struggle for Justice as a World Force," was ably presented by many outstanding speakers, many of whom were in New York for the United Nations meetings. Included in the speakers' roster were such well-known figures as Paul-Henri Spaak, president, United Nations Assembly, Lord Inverchapel, British ambassador to the U. S., and Vice-Admiral William H. P. Blandy. Sir John Boyd Orr spoke on the subject of food at the Forum, his topic being "There Can Be Food for All." Several members of the A.D.A., who are members of the Greater New York Dietetic Association, were privileged to attend some of the meetings.

Canadian Nutrition Survey. Upon a recommendation made by the Nutrition Division of the Department of National Health and Welfare, a second dietary survey is being made in Canada. The first was conducted in Saskatchewan last May. The new study is being made to obtain an indication of seasonal differences and thereby arrive at a more accurate picture of food habits.

Text-Film to Supplement Text Books. McGraw-Hill Book Company has started production of a series of seven 16 mm. sound motion pictures to supplement textbook work in college freshman hygiene courses and adult education groups. The first films are being produced to correlate with *Textbook of Healthful Living* by Dr. Harold S. Diehl. Another set of coordinated silent film strips on vital health subjects will also be available. It is planned to produce motion picture and silent film strips for a number of other McGraw-Hill textbooks.

National Sanitation Foundation. The annual meeting of the National Sanitation Foundation was held November 20 at the School of Public Health of the University of Michigan, Ann Arbor. The group has undertaken extensive research projects and dedicates itself to the solution of the widespread confusion existing in sanitation laws and regulations, many of which are outmoded.

Better Packaged Tomatoes. As a result of research by the USDA, tomatoes may now have a brighter color and better flavor than in the past. The improvement lies in better ventilation of transparent packages. Tomatoes use oxygen and give off carbon dioxide, even in sealed packages. When too much carbon dioxide accumulates, tomatoes cannot ripen to their full color and good flavor.

News of State Associations

Illinois Dietetic Association. On November 15 and 16, the Illinois Dietetic Association convened in Chicago at the Institute of Medicine. On Friday, Dr. T. S. Hamilton spoke on "The Recent Trends in Nutrition Research," and Dr. Rachmiel Levine gave an address on "Physiologic Basis for the Diet Therapy of Diseases of the Liver." During the morning session on Saturday, the following papers were presented: "The Dietitian as an Educator," by Virginia Harger; "Education to Allied Profession," by Jane Pond and Aileen Merwin; "Instructor of Patient," by Josephine Schildburg; and "Instructor of Personnel," by Mae Whitmer.

Indiana Dietetic Association. The last meeting of the Indiana Dietetic Association was held in Muncie with Grace McMahon, vice-president, as hostess. President Ruth Madsen led a discussion on "What Our State Organization Can Do for Us." Student dietitians from the Indiana University Medical Center then conducted a quiz program.

Committee chairmen for 1946–47 are: Diet therapy, Mary Fuqua; Administration, Elizabeth Huey; Professional education, Anna Linville; and Community nutrition, Zelia Kester.

Iowa Dietetic Association. Announcement was made of two changes in officers. Vice-president for the coming year is Florence Unash, State Department of Health, and the new Treasurer is Kay Louise Johnson, University of Iowa. Section chairmen are: Administration, Helen Goodenow, University of Iowa; Professional education, Edna Shalla, University Hospital, Iowa City; Community nutrition, Beata Reager, Cherokee State Hospital; and Diet therapy, Mildred Torrance, Mercy Hospital, Des Moines.

Kentucky Dietetic Association. The fall meeting of the Kentucky Dietetic Association was held at the Mammoth Cave Hotel, October 26 and 27. Dr. Marjorie Roundtree, director, East Louisville Health Center, spoke on "Putting Food Facts to Work." A report of the A.D.A. meeting in Cincinnati was given by the retiring president, Isabelle Wills.

Officers for the coming year are: President, Emily Bennett, Central Dairy Council, Louisville; President-elect, Elizabeth Taylor Banes, Lexington; Vice-president, Helen G. Koons, Massie Memorial Hospital, Paris; Secretary, Mary King Burrier, Eastern Teachers College, Richmond; Treasurer, Ruth Boyden, University of Kentucky, Lexington. The section chairmen for the year are: Administration, Amy Colescott, Louisville; Professional education, Ruth Butler, Paducah; Community nutrition, Florence Imlay, Lexington; Diet therapy, Isabelle Wills, Louisville.

Louisiana Dietetic Association. At the business meeting of the executive board of the Louisiana Dietetic Association held on September 19 it was decided to publish a bulletin, the first issue of which appeared in November. In it, the fall meeting of the Association, which was held on November 19, in New Orleans, was reported. Principal speaker was Dr. D. N. Seth of Louisiana State University.

Michigan Dietetic Association. New officers of the Michigan Dietetic Association elected at the fall meeting of the Association on November 2 at the University of Michigan are: President-elect, Margaret O'Connell, Harper Hospital, Detroit; Vice-president, Alice Smith, Michigan

BREAK TOAST BOTTLENECKS *with* Savory

Conveyor-type Toasters

Gas and Electric Operated – Stainless Steel

You will *speed up service* and get *toast of superior quality* with the *new* Savory Toaster. Because of the continuously moving conveyor the loading end is always clear, the toasting operation is completely automatic and the toaster unloads itself. This means saving of time for the operator, elimination of wasted motion and more and better toast with less effort. A Savory Toaster is like an extra helper when toast demands are heaviest.

The production rate per minute is from 6 to 12 slices and regardless of the quantity of toast produced, every slice is perfect—appetized toast—bread at its very best.

That's because the conveyor carried the bread through three heat zones (see illustration below) where the toast is finished progressively to its final state of perfection. The heat is automatically controlled by a thermostat which can be adjusted to bread characteristics and for peak or off peak demands.

The new design is modern, easy to clean and is completely protected against rust or corrosion. All outside parts are stainless steel and the structural members are aluminized steel. And with their astonishing toast capacity Savory Toasters cost but pennies per hour to operate.

THE 3 SAVORY STEPS TO PERFECT TOAST
STEP 1
MOIST HEAT FOR SOFT CENTERS
STEP 2
TOASTING HEAT FOR NUT-SWEET FLAVOR
STEP 3
FINISHING HEAT FOR GOLDEN-BROWN COLOR

SAVORY TOASTERS
are available in bread, buns and sandwich models

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Department of Health, Lansing; Secretary, Margaret Ohlson, Michigan State College, East Lansing; and Treasurer, Kathleen Hamm, University of Michigan.

On October 25, dietitians of Grand Rapids' hospitals held a dinner meeting at the Morton Hotel. It was decided at that time to formulate standard diet procedures for use in Grand Rapids' hospitals.

Minnesota Dietetic Association. The dietitians of Duluth were hostesses at the fall meeting of the Minnesota Dietetic Association on November 2. Sigrid Skurdalsvold reviewed the conference of the American Diabetes Association which met last fall in Toronto. There was also a discussion of the national A.D.A. convention held in Cincinnati in October. Richard Fox, assistant administrator of St. Luke's Hospital in Duluth, discussed the place of the dietitian in hospital organization. It was announced that the annual Continuation Study Course in Dietetics will be held at the University of Minnesota on February 21 and 22, 1947.

Mississippi Dietetic Association. On November 15 the Association officially became affiliated with the American Dietetic Association. This brings the total number of affiliated state and territorial organizations to forty-seven. The fall meeting was held in Jackson on November 1. The proposed constitution, based on the model constitution of the A.D.A., was discussed and unanimously approved. Officers elected were: President, Ethel Summerour, Mississippi State College for Women, Columbus; President-elect, Mary L. Gill, Vicksburg Hospital; Vice-president, Mary Ida Flowers, Mississippi State College for Women; Secretary, Nell Cooke, Veterans Hospital, Biloxi; Treasurer, Marteal Ingram, Perkinston.

The spring meeting for 1947 will be held in Jackson.

Missouri-Kansas Dietetic Associations. Kansas City, Missouri, was the scene of the joint fall meeting of the Missouri Dietetic Association and the Kansas Dietetic Association held November 15 and 16.

The program included the following addresses: "New Trends in Infant Feedings," by Dr. Herbert C. Miller; "Physical Medicine," by Dr. Gordon M. Martin; "Speech Therapy for the Linguistically Handicapped," by Quintela Anders; "Developments in Nutrition," by Dr. Wendell H. Griffith; "Air Line Catering, Past, Present, and Future," by Eve DeMariano; and "The Status of the Public Health Program in the State of Missouri."

The Missouri Association elected the following new officers at this meeting: President, Helen McLachlan, St. Louis; President-elect, Mary Reeves, Jefferson City; Vice-president, Luella O'Neill, Kansas City; Secretary, Hazel Chilton, St. Louis; and Treasurer, Helen Latta, St. Louis. Section chairmen for the year are: Community nutrition, Helen Tipton, St. Joseph; Administration, Margaret Pettyjohn, Kansas City; and Professional education, Anna Houston.

New York State Dietetic Association. *The Greater New York Dietetic Association* is making itself felt as a civic organization, by taking an active part in various types of community activities. In November members cooperated with the American Voluntary Women's Services in producing two in a series of nine radio broadcasts: Katherine Connelly Wisely spoke on November 1 on "Meal Predictions;" and on November 8, Estelle Barker discussed "Convalescent Cookery at Home." Ten members of the Association attended the annual Friendship Dinner given on November 13 by the Central Committee of Friendship Dinners, an international organization of classified business and professional women; and four members represented the Association at the Symposium of the Nutrition Foundation, November 13. Several members also attended some of the meetings of the *Herald Tribune* Forum on "The Struggle for Justice as a World Force."

The fall meeting of the *Buffalo Dietetic Associtaion* was held in the Nurses' Residence of the Millard Fillmore Hospital on November 14. R. M. Stafford of Frigidaire-General Motors spoke on frozen foods and presented the technicolor film, "Frozen Freshness."

Reports of the A.D.A. convention were presented at the October 24 meeting of the *Central New York Dietetic Association* at which time a number of new members were welcomed to the Central district. *Florence Lee* is in charge of the University Emergency Feeding at the Emergency Housing on the former New York State Fairgrounds. *Jean Wakeman* came from Wright Field, Dayton, Ohio, to be dietitian in Wilson Hall, Syracuse University. *Helen E. Underwood* is in charge of personnel management for food service at Syracuse University. She was formerly at the University of Vermont.

North Carolina Dietetic Association. The thirteenth annual meeting of the North Carolina Dietetic Association was held December 4 and 5 on the Duke University Campus at Durham. Among the addresses were: "Related Problems of Food Administration," by Marjory Stevenson: "Preview of the Extended School Lunch Program," by Anna W. Maley; "Features of Training Programs for Hospital Employees," by George W. Coggin; "New Models in Favorite Foods," by Barbara Correll; "Waste Studies Made at the University of North Carolina College for Women," by Cora Gray; "Nutrition of the Diabetic," by Dr. W. M. Nicholson; "Gastrointestinal Diseases," by Dr. J. M. Ruffin; "Clinical Findings in the Treatment of Burns," by Dr. K. LeRoy Pickrell; "New Aspects in the Treatment of Cardiac Cases," by Dr. E. S. Orgain; and "Diet Therapy of the Present Day," by Rebecca Rogers.

The Nutrition Service of the State Board of Health is constantly expanding. Dr. W. P. Jacocks, director, has announced that there are now five nutritionists on his staff— Dr. Bertlyn Bosley and four district consultants stationed in the field to advise schools, health departments, and local organizations in matters relating to nutrition. The School-Health Coordinating Service has two nutritionists who work on this same program.

Beth Gill, who has just completed her student training, is now on the staff at Charlotte Memorial Hospital. *Kathleen Broderick* became Mrs. Robert Gene Barnes on August 29. *Evelyn Gantt* was married to Robert F. Wagner on August 30. *Emma Burch* has accepted a position at the Baptist Hospital, Winston-Salem. Seven new student dietitians have recently entered the training course at Charlotte Memorial Hospital.

Ohio Dietetic Association. New officers of the state association are: President, Elizabeth Perry, City Hospital, Cleveland; President-elect, Helen Volk, Cincinnati General Hospital; Vice-president, Helen Mallory, University Hospitals, Cleveland; and Secretary, Mary N. Letherman, Mt. Carmel Hospital, Columbus.

Dr. Vincent duVigneaud, professor of biochemistry at Cornell University, was a recent visitor at Christ Hospital, Cincinnati, where he conducted a seminar for the research group and some of the dietitians. He told of his work with methionine and related compounds and the discovery of transmethylation.

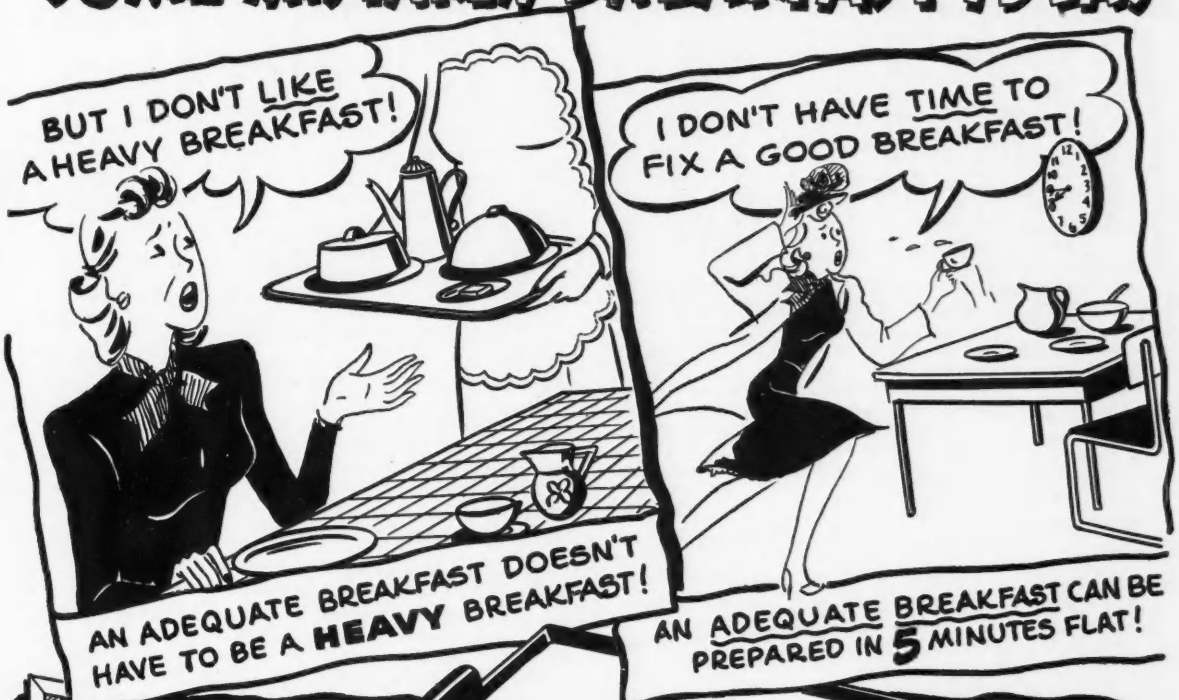
City Infirmary of Cleveland has a newly reorganized dietary department with the following dietitians from the City Hospital on duty: *Virginia Hamilton, Germaine Fox,* and *Cherydal Werts.*

Lena Scali, a former dietitian with Northside Hospital, Youngstown, has accepted a position in industrial work with The Factory Stores. *Sister Francis Clare*, former therapeutic dietitian at St. Elizabeth Hospital, Youngstown, is now administrative dietitian.

Phyllis Engel Worthman has resigned her position as therapeutic dietitian at St. Francis Hospital, Columbus, to become assistant dietitian at White Cross Hospital.

Post Scripts ... by Bob Dall

SOME MISTAKEN BREAKFAST IDEAS


BUT I DON'T LIKE A HEAVY BREAKFAST!
I DON'T HAVE TIME TO FIX A GOOD BREAKFAST!
AN ADEQUATE BREAKFAST DOESN'T HAVE TO BE A HEAVY BREAKFAST!
AN ADEQUATE BREAKFAST CAN BE PREPARED IN 5 MINUTES FLAT!

HOME BULLETIN

DON'T FORGET!

Every Post Cereal is either WHOLE GRAIN or restored to WHOLE GRAIN values in the important nutrients iron, niacin and thiamine.

THIS IS A GOOD BREAKFAST

PERFECT IN ANY BREAKFAST PATTERN—

SUGAR-ROASTED GRAPE-NUTS FLAKES

A GENEROUS BOWLFUL* OF POST'S GRAPE-NUTS FLAKES WITH MILK AND SUGAR SUPPLIES THE FOLLOWING:

AMOUNTS	PROTEIN	CALCIUM	IRON	THIAMINE	RIBOFLAVIN	NIACIN
	7 G.	145 Mg	1.5 Mg	0.22 Mg	0.30 Mg	1.7 Mg
% OF ADULT MINIMUM DAILY NEEDS	10%**	19%	15%	22%	15%	12%**

199 CALORIES

* POST'S GRAPE-NUTS FLAKES (1 OZ), MILK (4 OZ), SUGAR (1 TSP)
** PROTEIN BASED ON 70 G; NIACIN BASED ON 15 Mg.

PRODUCTS OF GENERAL FOODS

The following news of Cleveland dietitians has been received: *Miriam Winikur*, Mt. Sinai Hospital, was married to Harvey Gibbs on November 24. On September 13, *Marjorie Hazlett*, University Hospitals, became Mrs. C. Roy Case. *Doris Allen*, head floor dietitian, at St. Luke's Hospital, was married on November 9 to Joseph Dragovich.

Also from Cleveland comes news that *Maxine Chetcock*, formerly at Parkview Hospital, Pueblo, Colorado, recently joined the staff of the Huron Road Hospital. *Eleanore Tomcik* has resigned her position as teaching dietitian at St. Luke's Hospital and has been replaced by *Frances Nulton*. *Florine Craig* and *Margaret Slentz*, both former Army dietitians, are recent additions to the staff at St. Luke's.

Virginia Dietetic Association. The annual fall meeting of the Virginia Dietetic Association was held at the John Marshall Hotel, Richmond, on November 15 and 16. The program included a report by Elizabeth Lounds on "Riboflavin Retention on High and Low Protein Intakes." George Zipfel gave an interesting forecast of developments in the equipment field and described new trends in setting up institutional equipment. Dr. Reno Porter, Medical College of Virginia, spoke on diet therapy, and Dr. St. George Tucker gave an address at the dinner meeting on new dietary treatment in liver diseases.

The *Tidewater Dietetic Association* sponsored a fall supper meeting at the Pine Tree Inn, Norfolk, in October with fifteen members present. The *Richmond Dietetic Association* held a meeting on October 14, at which time Helen Ward, assistant state supervisor of school lunch, explained the work of the school lunch program in Virginia.

News about Members

The following members of the American Dietetic Association have recently accepted new positions and appointments:

Margaret L. Anderson has recently accepted a position as cafeteria manager of the Essex County Technical School for Girls in Newark, New Jersey.

Jean Bergquist, formerly at Aultman Hospital, Canton, Ohio, is now assistant dietitian at Murray Hall, Oklahoma A. and M. College, Stillwater.

Marion M. Bolin has accepted a position at Our Lady of the Lake Sanitarium, Baton Rouge, Louisiana. She was formerly with the U. S. Public Health Service Hospital, Fort Worth, Texas.

Mary Margaret Carter has left Texas and is now dietitian in the Industrial Cafeteria of E. I. du Pont de Nemours & Company, Waynesboro, Virginia.

Charlotte Cone is now therapeutic dietitian at Aultman Hospital, Canton, Ohio. She was formerly at St. Marys Hospital, Rochester, Minnesota.

Lillie Corothers has left Passavant Hospital, Chicago, to accept a position at Queens Hospital, Honolulu.

Ina Rufus Edwards became assistant dietitian at James Walker Memorial Hospital on October 21. Formerly she was at Watts Hospital, Durham, North Carolina.

Sheila Eldred, following the completion of her student training at St. Louis University Hospital, St. Louis, accepted a position as assistant dietitian at De Paul Hospital, St. Louis.

Elizabeth J. Emmons, recently released from the Army, has accepted a position as assistant administrative dietitian at Jewish Hospital, Brooklyn.

Catherine Floersh has resigned her position at Good Samaritan Hospital, Cincinnati, and is now first administrative dietitian at St. Thomas Hospital in Nashville, Tennessee.

Leah Friedland's first position after completing her student dietitian training at New York Hospital, New York City, is that of therapeutic dietitian, The Bronx Hospital, Bronx, New York.

Clarabel Graham is now administrative dietitian in charge of Psychiatric Unit at Cook County Hospital, Chicago. Previously she had been dietitian at Presbyterian Hospital, Chicago.

Mary G. Hawkinson joined the staff of St. Marys Hospital, Rochester, Minnesota, on October 28.

Mary Jane Hoag has recently accepted a position as supervisor of Al Green Restaurants Inc., Willow Run Airport, Grosse Point, Michigan.

Barbara Hodgkins, after completing her student training at Vanderbilt University Hospital, Nashville, Tennessee, became therapeutic dietitian at Monmouth Memorial Hospital, Long Branch, New Jersey.

Leeta F. Houser has been transferred from Stouffer's Restaurants in Chicago to Stouffer's in Philadelphia.

Mildred A. Johnson's first position following her student dietitian training is that of therapeutic and teaching dietitian at Moline Public Hospital, Moline, Illinois.

Elaine Kingston has left West Lafayette, Indiana, and is now on the staff of University of California, Santa Barbara, as instructor in charge of the college cafeteria.

Betty Jane Lindberg became assistant dietitian at Fairview Hospital, Minneapolis, on October 28.

Doris Longman is now with the New York State Department of Health, Nutrition Bureau. She recently completed a graduate course in Public Health Nutrition at Simmons College.

Lily Lane McCorkle resigned her position at Protestant Hospital, Nashville, Tennessee, to become chief dietitian at San Bernardino County Hospital, San Bernardino, California.

Mary Alice Matthews became dietitian at Raiford Memorial Hospital, Franklin, Virginia, on December 5. She was formerly dietitian in charge at Women's Clinic, New York Hospital, New York City.

Helen Osoba has resigned her position at Memorial Hospital, Houston, Texas, and is now with the Dietary Department at Leahi Hospital, Honolulu.

Sylvia Perlstein has a new position at the Embassy Dairy, Washington, D. C. She left a position at Chestnut Farms Dairy, Washington.

Eloise Ross has left the Station Hospital, Fort Worth, Texas, to accept a position in the Dietary Department of Barnes Hospital, St. Louis.

Inez Schoulte, a recent graduate of the student training course at Cincinnati General Hospital, is the new ward supervisor of Charity Hospital, New Orleans.

Dorothy Schuerch, recently released from the Coast Guard, is now with the Suffolk County Health Department, Riverhead, New York.

Lois Sheridan has left the Dietary Department of Christ Hospital, Cincinnati, to join the staff at Butterworth Hospital, Grand Rapids, Michigan.

Ada E. Showalter has left the U. S. to join the staff at the Mennonite Hospital, Nazareth (Hadama), Ethiopia, Africa.

Sister Mary Bertha is now assigned to the St. Joseph Hospital, Mt. Clemens, Michigan. She was previously at Glockner Sanatorium, Colorado Springs.

Dorothy Springer, formerly assistant director, Dietary Department, University of Oklahoma Hospital, Oklahoma City, is the new therapeutic dietitian at Cottage Hospital, Santa Barbara, California.

Dorothy Cole Staples has resigned her position as instructor at Vermont Junior College, Montpelier, to teach foods and nutrition to students in the School of Nursing at Hartwick College, Oneonta, New York.